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OHIO ENVIRONMENTAL PROTECTION AGENCY (Ohio EPA)

DIVISION OF EMERGENCY AND REMEDIAL RESPONSE (DERR)

TARGET BROWNFIELD ASSESSMENT INVESTIGATION REPORT

**Mahoningside Project
Warren, Ohio
July 24-26, 2001 Sampling Investigation**

U.S. EPA ID: OHN000508061

June 26, 2002

SIGNATURE PAGE

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Executive Summary

The Ohio Environmental Protection Agency, Division of Emergency and Remedial Response has completed a Targeted Brownfield Assessment (TBA) for Mahoningside Brownfield site [U.S. EPA ID# = OHN000508061 and Ohio EPA ID# = 278-1968]. The project at a former powerplant building is located in the city of Warren, Ohio in the northeast quadrant of the state, adjacent to the Mahoning River. The City of Warren initiated a voluntary clean-up of the site; discovered gross PCB contamination on-site and to the river. The City of Warren then requested U.S. EPA Emergency Response help. U.S. EPA assigned the CERCLIS ID of OHN000508061 to this site.

The City of Warren lacked funds to continue working on the environmental assessment at the site. They requested Ohio EPA to provide assistance through the TBA. The Ohio EPA sampling work plan was submitted to U.S. EPA, who approved it on July 13, 2001. The three-day investigation was conducted on July 24-26, 2001. The specific goals of the TBA were to provide information to the city and their clean-up contractor; to field-screen the three large waste piles, using an XRF; to install piezometers and collect ground water samples; to collect a surface water sample; to collect surface & sub-surface soil samples; and, to analyse soil samples for asbestos.

Seven GeoprobeTM borings locations encircled the former powerplant building and examined the western portion of the site. The boring cores ranged from 8 to 20 feet deep, when subsurface materials refused to allow the Geoprobe to penetrate deeper. The soil lithology of each core was logged by an Ohio EPA-NEDO geologist. One ground water and/or 1-2 soil samples were collected from each bore hole for laboratory analysis. The analyses were through a Ohio EPA-contract laboratory, and analyzed according to Voluntary Action Plan (VAP) standards. The VAP standards for analyses is comparable or better than the U.S. EPA Target Compound List (TCL) organics and the U.S. EPA Target Analyte List (TAL) inorganics, which included volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), total recoverable petroleum hydrocarbons (TRPH); polychlorinated biphenyls (PCBs); total metals & cyanide; and/or, asbestos. Pesticides were not analyzed for in either media. Supplemental analyses were for and asbestos and total recoverable petroleum hydrocarbons (TRPH).

1.0 GENERAL INFORMATION

1.1 Purpose and Scope

The Division of Emergency & Remedial Response (DERR) of the Ohio Environmental Protection Agency (Ohio EPA) entered into a cooperative agreement with Region V of the United States Environmental Protection Agency (U.S. EPA) for the completion of a Targeted Brownfield Assessment (TBA) investigation at the Mahoningside Brownfield site [Ohio EPA ID# 278-1968]. The site originally was a coal gasification power plant. Later used by a recycle/salvager, who illegally and improperly disposed of PCBs. Some of the PCBs entered the soil and ground water, while others were directly discharged to the adjacent Mahoning River and its downstream sediments.

Previous information of site activity comes from a City of Warren voluntary clean-up action, and a U.S. EPA Emergency Removal (ER) of PCBs. The City of Warren procured the site from Ohio Edison. The City's contractor initiated a demolition of the building, when they discovered a severe PCB-contamination problem. Help was requested from and provided by the U.S. EPA ER program to remove PCBs in soil, bedrock and building materials, especially in the basement of the building. The contamination source and pathway to the river was removed. U.S. EPA ER could not acquire additional funding to investigate an area west of the former plant building foundation, which is part of the focus of this TBA investigation.

The City of Warren requested U.S. EPA Brownfield assistance in performing this investigation as part of their Voluntary Action Program (VAP) Clean-Up Project. TBA assistance was provided by Ohio EPA. The purpose of this Target Brownfield Assessment (TBA) is to investigate the area around (and especially west of) the former plant building foundation.

The City and their consultant, McCabe Engineering, has used and is using this TBA investigation's results to continue towards the final clean-up of the site. The goal after completion of the VAP clean-up is to restore the use of the land as part of a riverfront development and revitalization project. (For a map of their proposed development scheme, see **Figure 5, U.S. EPA Mahoning River Sampling Locations Map.**)

1.2 Involved Parties

Current Property Owner:
City of Warren

Former Property Owners:

Warren Electric Light & Power Company

Warren Water & Light Company

Hydro-Electric & Gas Company

Trumbull Public Service Company

Ohio Public Service Company (OPS)

Ohio Edison Company

Ohio Edison leased the property to Harold Blunt, John Petrilla and
Summit Warren Industries

William Marsteller & Dr. Nestor Stychno

Leonid Stychno & Dr. Nestor Stychno

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1.3 Site Description

The Mahoningside Brownfield Targeted Brownfield Assessment (TBA) investigation is located at 650 Summit Street, Northwest in Trumbull County within the City of Warren, Ohio corporation limits [Latitude: 41° 14' 36.60 North; Longitude: 080° 49' 40.44" West]. Warren is located in northeast Ohio, between Youngstown and Cleveland. In 2000, the number of people located within a one-mile and a four-mile radius of the site were 13,238 and 71,295 people, respectively. The site's location is shown in **Figure 1**,

Mahoningside Site Location Map and in **Figure 2, Mahoningside Former Site Features Map**; and, see **Figure 3: Mahoningside 1980 Air Photo**. [Please note that the **Figure 3** 1980 air photo was used due to its large scale and its clarity. It shows most of the site and gives a general understanding of the site. More recent, large scale photography was not available. Only two small buildings remain, while the others have been raised and only foundations remain.] (ODOT, 1980 and USGS, 1984.)

Originally, the property belonged to Ohio Edison Power Company from 1950 to 1980. The site was a coal gasification plant, which burned coal to generate electricity. The coal gas-fired boilers heated water to make steam, which spun turbines and generators. The generators created the electricity to power the City of Warren.

The site property belongs to the City of Warren and is comprised of 6.583 acres. Basically, this site and property is an elongated rectangle, stretching from west to east. The site is bordered to the west by Tod Ave. NW; to the north by an active railroad track (Conrail), residential neighborhood, and a vacant, wooded land (unknown ownership), then the Mahoning River; to the east by the Mahoning River, a dam and Mahoning Avenue; to the south by Summit Street, NW (a.k.a. State Route 45 East) with a commercial property, two residential properties and light industrial properties; and, a couple of businesses in the southwest.

The western third of the current site is gently sloped to the east, while the eastern 3/4ths are mostly flat/level. Along the railroad embankment, the slopes are supported with walls, which drop abruptly from the railroad track to the flat portion of the site.

From west to east, the current site elevation drops from approximately 895 feet above mean sea level (a.m.s.l.) at Tod Ave. to approximately 880.75' feet a.m.s.l. (surveyed) atop the wall above the river (USGS, 1984 & McCabe, 2001). The (surveyed) floor of the basement is 20 feet deep, making it approximately 860.75' feet a.m.s.l. (McCabe, 2001) Thus, surface water runoff is from west to east to the river. Little site runoff currently reaches the river, because it flows into the power plant foundation basement. (Hereto, the "basement" refers to the power plant foundation basement, unless otherwise specified.) When the basement will be backfilled, the runoff will resume its course to the river.

Based on the USGS topo map, the elevation of the Conrail track is approx. 900 a.m.s.l. (USGS, 1984). The surveyed dam elevation is about 869.18' feet a.m.s.l. (McCabe, 2001). The surveyed elevation of the river floodplain along the river at the base of the dam is approximately 861.80' feet a.m.s.l. (McCabe, 2001)

As of the site investigation, the Mahoningside Power Plant Site consists mainly of the exposed basement of a former power plant building. The basement structure contains

numerous underfloor sumps, piping, and conduits, some of which formerly connected to the Mahoning River. The remnant basement encompasses approximately 34,000 square feet. The basement floor is approximately 20 feet beneath the ground surface and is flooded with about five to twelve feet of water, making it very dangerous. This building occupies the eastern third of the site. (U.S. EPA, 2001 and Ohio EPA, 2001.)

There have been cases of unauthorized entry and vandalism at the Site. The site is accessible from three locked gates: the main entrance on Tod Ave. near the northwest corner of the site; a second gate along Summit St. near the southeast corner of the site; and, a third man-sized gate under the railroad track in the northeast corner of the site. The City of Warren, telephone number (330)841-2601, possesses the keys to these gates. The site is enclosed on three sides (south, east & north) by a seven-foot-high one cyclone fence with barbed wire on top (in marginal condition). A 15-20 foot high concrete wall along the river, which effectively restricts site access. There is evidence of site intrusion with a downed fence in both the northeast and southeast corners of the site. (U.S. EPA, 2001.)

There is a school within one mile of the site (to the south). Approximately one half mile to the southeast of the site is City Hall, and there is a city park less than 1/4 mile to the south. (U.S. EPA, 2001.)

The west side of the property is currently used as a temporary office and staging area. The three large waste piles are also located here from the former power plant building. The foundation basement are located on the river's edge at the east end of the facility. (U.S. EPA, 2001.)

Two permanent structures remain on-site. The first structure is a former pumphouse building situated along the eastern river wall. The bottom of the brick & concrete pumphouse extend beneath the dam pool level. The dam was originally constructed for the power plant and was a dependable cooling water source. The interior of the pumphouse is accessible and is very dangerous as a physical hazard. It has a dilapidated first floor over a twenty-foot drop into a flooded sub-level. (U.S. EPA, 2001.)

The other permanent structure on-site during the 2001 sampling event was formerly used as an equipment / maintenance garage. The garage is located southwest of the foundation along Summit Street.

Residential areas of the City of Warren adjoin the site to the northwest, west, southwest and south. These residences are serviced by the Warren public water supply. There are no known, nearby residential wells near the site. Utilities are known to parallel Summit Street; and are suspected along the Conrail track and Tod Ave.

1.4 Mahoning River

The adjacent Mahoning River (at about River Mile 39.3) is considered by Ohio EPA-Division of Surface Water (DSW) to be impaired by point source and non-point source pollutants. According to the Ohio EPA-DSW, the known sources of impairment to the river are: "major and minor industrial point sources, a major municipal point source, urban runoff/storm sewers (NPS), spills, contaminated sediments, hazardous waste, and unknown sources". As for known causes of river impairment, "nutrients, metals, priority organics, pathogens, oil & grease and chlorine". Urban runoff was reported by Ohio EPA-DSW as a known or suspected source of impact to the river. This section of the Mahoning River is not or is only partially attaining its WarmWater Aquatic Life Use designation.

PCBs (Aroclor-1248 & 1260) in the Mahoning River originate from a source between River Miles 40.2 and 38.9, per the Ohio EPA-DSW. The U.S. EPA-ER action identified that the Mahoningside site had the following PCBs Aroclors on-site: Aroclor-1242, -1248, -1254 & primarily -1260. [U.S. EPA verified that the site contributed these PCBs (primarily 1260) to this stretch of river.] The site was the source or one of the major sources of PCB contamination to the river.

Alternative sources immediately upstream of the site include a steel mill and a storm sewer. The river sediments are contaminated upriver, adjacent and downriver of the site with PCBs, PAHs and/or metals.

2.0 BACKGROUND INFORMATION

2.1 Site History

The facility was built in 1904 by the Warren Water and Light Company as a hydro-electric power generating plant. From 1950 until 1980 the facility was owned by the Ohio Edison Company and primarily used as a coal-burning power plant until the early 1970s. See **Figure 2**. Basically, over the decades, coal was brought to the facility by railroad or truck and stored in a large coal pile. The pile covered approximately half of the property. The coal was crushed and screened then conveyed into the plant. The coal was pulverized and burned to heat boilers. The boilers heated water in an enclosed- pipe system. The steam pressure turned turbines attached to generators, which created electricity. Electric power went to a transfer station then off-site into the community. (Various sources, 2001.)

In the late 1970s the property was leased by Ohio Edison to Summit-Warren, Inc.,

where the property was used to operate a salvage business. Ohio Edison reportedly removed all their transformers from the site before selling the site. At that time, the business was owned and/or operated by Harold Glunt and John Petrilla. In 1980, the property was sold to Nestor Stychno and William Marsteller. In 1999, an agreement between the former property owners and the City of Warren was established to turn the property over to the city. (U.S. EPA, 2001.)

2.2 USGS Topographic Maps and Historical Air Photos

The site history is collaborated with air photos and available USGS Topographic Maps for the site area: two current, 7-minute quadrangles -- the 1963 "Warren" and 1960 "Champion" (both photo-revised in 1984). (See **Figure 1**.) Aerial photography of the site was obtained by Ohio EPA from the Ohio Department of Transportation for the years of 1951, 1953, 1962, 1977, April 1980, May 1980, 1986, and 1992.

The 1951 air photo shows the buildings, coal pile and smoke coming from the smokestacks. The 1953 photo is similar.

In a 1962 photo, the coal pile is gone and no smoke emanates from the stacks. The 1977, 1980, 1986, and 1992 photos are similar. For 1980 photo, see **Figure 3**.

2.3 Phase One and Phase Two Assessments

In late 1995, a Phase One environmental site assessment was performed by Innerscope Technical Services, Inc. for the City of Warren and South Main Sand & Gravel. Based on its findings in 1996, a Phase Two environmental site assessment was performed. The subsequent Phase Two consisted of a subsurface investigation (30 borings & 5 monitoring wells), an asbestos bulk survey of structures, and water and sediment sampling of the power-house and boiler-house basements. The Phase Two report was dated February 1997. (City of Warren, 1995; City of Warren, 1997; U.S. EPA, 2001.)

2.4 Phase Three (Removal) Assessment

In February 1999, Innerscope Technologies and McCabe Engineering mobilized to begin demolition and general construction activities at the Mahoningside Power Plant Site. [McCabe is the environmental consultant & remediation contractor to the City of Warren.] On March 17, 1999, two 250-foot high smokestacks were imploded by explosives. General demolition activities continued until November, 1999. During this

time, environmental issues, mainly relating to asbestos contaminated material, were being coordinated through Ohio Environmental Protection Agency (Ohio EPA) and its Voluntary Action Program (VAP). Ohio EPA approved the use of subsidized technical assistance on the project. (U.S. EPA, 2001.)

In November 1999, McCabe Engineering consulted Ohio EPA and U.S. EPA to examine regulatory compliance should PCBs or heavy metal contamination be discovered during the removal of basement debris. From December 1999, through early March 2000, debris removal from the basement progressed. All PCB contamination that was discovered during this time was below the TSCA regulatory level of 50 parts per million (ppm) for industrial facilities. (U.S. EPA, 2001.)

According to McCabe Engineering, on March 23, 2000, during excavation of debris in the north boiler-house area, a strong odor typical to PCB concentrated oil was discovered. A grab sample of the material providing the odor was collected and submitted to a laboratory. Analysis indicated that 4,500 ppm of PCB Aroclor 1260 was present in the material. Subsequent sampling indicated that high levels of PCBs were present in the structure debris, subsurface, and in intake/discharge pipes joining the building to the river. The river sediments at one of the discharge pipes had PCBs in excess of 200 ppm. PCB contamination ranged from 24 ppm to 147,000 ppm in the structure. PCB actions were coordinated with Ohio EPA, and the U.S. EPA Waste, Pesticides, and Toxics Division. (U.S. EPA, 2001.)

Based on the PCB results, McCabe Engineering excavated over 500 cubic yard of PCB-contaminated material from the basement, piping, conduit, sumps, and river sluiceway. The waste was contained in 30 roll-off boxes. Due to the continued in-flux of water into the facility, McCabe Engineering installed a de-watering system that includes filtration and carbon treatment prior to discharge to the local sanitary sewer system. McCabe Engineering also plugged influent and discharge lines from the facility to the river with concrete. Due to groundwater infiltration, de-watering continues. (U.S. EPA, 2001.)

In mid-June 2000, the City of Warren ran out of funding to complete this project. McCabe Engineering continued the de-watering system on a good-faith basis. (U.S. EPA, 2001.)

2.5 U.S. EPA Emergency Removal

On July 21, 2000, the City of Warren requested U.S. EPA--Emergency Removal (ER) assistance to complete the removal and disposal of hazardous materials at the Site and to take over the de-watering operation. On August 4, 2000, U.S. EPA--ER obligated

\$25,000 to continue the de-watering activities on Site.

On October 10, 2000, U.S. EPA--ER initiated a removal action at the Mahoningside Power Plant site to stabilize and remove PCB and potential mercury contaminated soils, debris, and sediments. U.S. EPA--ER has completed cleaning the sumps, trenches, and drains of the basement of the former power plant. Sampling of the Mahoning River to estimate the extent of PCB contamination has been completed with some assistance of Ohio EPA. Sub-surface sampling to identify potential areas of PCB contamination has been completed. An estimated 1,770 tons of PCB-contaminated waste (in the form of soil, concrete, and soft shale) and 25 pounds of mercury waste have been transported off-site for final disposal. A waste water treatment system (WWTS) remains on site and is the property of the City of Warren. Final demobilization of the site occurred on February 23, 2001. (U.S. EPA, 2001 and Ohio EPA, 2000.)

See **Figure 4, U.S. EPA On-Site Sampling Locations Map**; and, **Figure 5, U.S. EPA Mahoning River Sampling Locations Map**. More detailed information about the 1995 Phase One and 1997 Phase Two Assessments for the Mahoningside site can be found in the following documents: "Phase I Environmental Site Assessment Report for the Mahoningside Power Plant, prepared by Innerscope on September, 1995" (Warren, 1995); and, "Phase II Environmental Site Assessment Report for the Mahoningside Power Plant, prepared by Innerscope on February, 1997" (Warren, 1997).

During the Removal, U.S. EPA--ER requested additional funds to investigate the soil for PCB spills and dumping west of the building basement, but was denied. Thus, U.S. EPA--ER did not address this western area. Based on interviews with local residents, there was enough information to request the additional funds. The site was in limbo until the City and its consultant, McCabe Engineering, received the results of this TBA investigation.

2.6 Ohio EPA Site Reconnaissances & Sampling Assistance

The City of Warren initially contacted Rod Beals of the Ohio EPA--NEDO for Brownfield assistance on Fall of 2000. Once the site is cleaned up, the city would like to see the property used commercially such as a hotel with a convention center. Also, in the Fall of 2000, Ohio EPA provided manpower and equipment to aid U.S. EPA sample Mahoning River sediment downstream of the site.

Two reconnaissances by Jeff Wander and Ed Link of Ohio EPA (Columbus) were conducted of the Mahoningside site: on February 13, 2001, and on May 7 & 14, 2001. The latter portions of the U.S. EPA's Emergency Removal at the site were observed on May 7 & 14, 2001. PCB-contaminated sediments were being removed from the

Mahoning River at the terminus of a discharge pipe. A meeting also occurred with Jeff Kimble of the U.S. EPA's START contractor.

The May 7, 2001 reconnaissance included a meeting of the principle parties interested in the site: a representative of McCabe Engineering; Fred Harris, Service Director for the City of Warren; an assistant to the Mayor of the City of Warren; Vanessa Steigerwald and Sue Watkins of Ohio EPA-DERR Twinsburg District Office; and, Jeff Rizzo, Ohio EPA Division of Drinking & Ground Waters of Twinsburg District Office.

The reconnaissance included a site walk-over; explanation of U.S. EPA's recently-completed Emergency Removal work; explanation of City's future remediation work at the site; compliance requirements for the Voluntary Action Program and Brownfield Program; and, assistance needed from Ohio EPA. After the reconnaissance, the above individuals met with the Mayor of Warren, Henry "Hank" Angelo to address his concerns. (Ohio EPA-2001.)

3.0 SITE GEOLOGY

3.1 General Soils

The average annual precipitation over a 35-year period (1951-1986) for Youngstown was 37.45 inches; and, the average annual temperature was 48.4 degrees Fahrenheit. (USDA, 1992.)

The county was covered by glaciers several times during the Pleistocene. The soils in Trumbull County formed in several kinds of parent material: these are glacial till, glacial outwash, lacustrine material, shale residuum, accumulated organic material, windblown deposits, and recent alluvium derived from these various kinds of material. The soil under the site is mainly alluvial material was carried and deposited by flood waters. It is the youngest parent material in the county. It is still accumulating, as fresh sediments are added periodically when streams overflow their banks. These sediments are derived mainly from the surface layer of soils and exposed glacial drift in the higher surrounding areas. (USDA, 1992.)

Generally, according to the Soil Survey, the original soils on the site are the Orrville soil association. These soils are formed in deep, silty or loamy, relatively fertile, strongly acid to mildly alkaline alluvial material. This association usually is on flood plains (bounded by steeper slopes); are nearly level; are somewhat poorly drained; and, are frequently flooded. This soil is characterized as follows: narrow to relatively broad valley floors; a seasonal high water table at a depth of 12 to 30 inches during extended

wet periods; slopes of 0 to 2 percent; moderate permeability; and, a high available water capacity. (USDA, 1992.)

Typically, the surface layer of Orrville soils is dark grayish brown silt loam. The subsoil is brown and grayish brown, mottled silt loam. It has thin strata of loam in the lower part. (USDA, 1992.)

3.2 Glacial Geology

Trumbull County was covered by several glaciers during the Pleistocene. The material deposited by the glaciers ranges from a few feet to almost 100 feet in thickness. It contains sandstone and shale fragments that were broken off from the bedrock locally as the glaciers advanced. It also contains limestone and igneous fragments, which originated from much farther north. The glacial material deposited by the two older glaciers is buried below that of the younger Wisconsinan Glacier. The glacial till in which the soils on till plains formed generally is of late Wisconsinan age. (USDA, 1992.)

The Mahoning River and its tributaries drain areas on both sides of the Defiance End Moraine, but the direction of flow is generally southward. It then flows southeast into Pennsylvania to the Beaver River, then to the Ohio River. (USDA, 1992.)

3.3 Bedrock Geology

Trumbull County is in the Glaciated Appalachian Plateau physiographic region of Ohio. Glacial advances during the Pleistocene deposited material that covers the underlying bedrock. (USDA, 1992.)

The bedrock occurs as three layers: the bottom (oldest) layer is Devonian; the middle layer is Mississippian; and, the top layer is Pennsylvanian. The Devonian rocks are Ohio Shale. They are in the northwestern part of the county. Mississippian rocks are the shales and sandstones of the Berea Formation and the overlying Cuyahoga Formation. These formations underlie most of the county. Rocks of the Pennsylvanian-aged Pottsville Group underlie the southwestern and southeastern parts of the county. Sharon Sandstone, a cross-bedded sandstone within the Pottsville Group, was deposited in low areas. Streams removed part of the Sharon Sandstone soon after the rock was formed, and Sharon Coal was deposited in the former stream channels. This coal was mined in the 1870's for fuel for steelmaking in the industrial cities of northeastern Ohio. Other economically important rocks are the Sharon and Berea Sandstones which are excellent aquifers and formerly were quarried for building stone.

(USDA, 1992.)

3.4 Site-Specific Geology

See **Figure 4**. Based on U.S. EPA boring logs for the **DR-15** location, between the east side of the plant basement and the river, the stratigraphy beneath the site there is:

00-09' = Fill material with some clay and sand;
09-10.5' = Concrete;
10.5-20' = Fill material with some clay and sand;
20-22' = Shale
=====

Static Water level = 22'

Based on U.S. EPA boring logs for the **DR-1** location on the west side of the plant building basement floor, the stratigraphy beneath the basement floor is:

0-20" = building basement
20-20'08" = concrete basement floor [aquitard?]
20'08"-24' = possible fill material, sand & gravel, clay, and/or
soft shale bedrock [unconsolidated aquifer]
24-28' = soft shale bedrock
28-42' = hard shale bedrock [aquitard?]
42-43'8" = sandstone bedrock * [sandstone aquifer]
=====

Static Water level = 25' (Note = Depth to water was about 25 feet from land surface.)

* = Sandstone was only encountered in one (DR-1) of U.S. EPA's 24 on-site boreholes in late Fall of 2000.

Thus, the basic stratigraphy beneath the site is an unconsolidated material with an unconsolidated aquifer; above shale bedrock; and, overlying a sandstone bedrock. The unconsolidated glacial material has a shallow, saturated zone into the soft shale. This unconsolidated aquifer is not known to be used nearby for potable water. No use is made of the unconsolidated aquifer due to low yield and to a public water supply. Beneath the unconsolidated aquifer, the shale bedrock is not porous and acts as a aquitard or barrier. The shale is fractured but mostly acts as an aquitard. Under the shale is a sandstone aquifer bedrock, which is regionally is a dependable aquifer. Local well logs report the sandstone at least 80 feet thick. Though within the Warren city limits, the sandstone aquifer has little or no users. All potable water for the City of

Warren public water supply (18,338 people served) is obtained from surface water sources.

The U.S. EPA--ER boring logs indicate that the shale bedrock is closer to the surface at the west end of the site, then is deeper towards the east side and the river. U.S. EPA--ER drilled sufficiently on the north, south & east sides of the basement between the basement and the river.

As part of this TBA, eight Geoprobe™ soil borings were completed at the Mahoningside site. The majority of these borings were in the area west of the building basement. These borings collaborated the aforementioned U.S. EPA logs and addressed areas not examined by U.S. EPA. The Ohio EPA boring logs have been included in **Attachment A, Mahoningside T.B.A. -- Ohio EPA Boring Logs**. The soil lithology of each core was logged by an Ohio EPA--NEDO geologist.

The Ohio EPA **GP-1** (south well) information follows:

Surveyed Top	= 0.0'	878.38' a.m.s.l. (surveyed)	[874.80' a.m.s.l. (GPS)]
Static Water level	= 13.7'	864.68' a.m.s.l.	
Bottom of Hole	= 21.5'	856.88' a.m.s.l.	

The Ohio EPA **GP-2** (north well) information follows:

Surveyed Top	= 0.0'	881.96' a.m.s.l. (surveyed)	[877.44' a.m.s.l. (GPS)]
Static Water level	= 13.7'	867.76' a.m.s.l.	
Bottom of Hole	= 21.5'	860.86' a.m.s.l.	

The Ohio EPA **GP-3** (west well) information follows:

Surveyed Top	= 0.0'	877.30' a.m.s.l. (surveyed)	[874.85' a.m.s.l. (GPS)]
Static Water level	= 10.5'	866.68' a.m.s.l.	
Bottom of Hole	= 18.3'	859.00' a.m.s.l.	

4.0 T.B.A. SAMPLING INVESTIGATION

4.1 Introduction

Standard Quality Assurance and Quality Control (QA/QC) procedures for field activities were followed during the investigation. All samples were collected, packaged, and shipped following the Quality Assurance Project Plan (QAPP) for Region V Superfund

Site Inspection Activities for Ohio EPA and with Ohio EPA Standard Operating Procedures ("Quality Assurance Project Plan for Superfund Site Investigation Activities conducted by Ohio EPA," 14 May 1998).

All soil & water samples were analyzed by DLZ Laboratories, an Ohio EPA-contract laboratory, according to Voluntary Action Plan (VAP) standards. The VAP standards for analyses is comparable or better than the U.S. EPA Target Compound List (TCL) for organics and the U.S. EPA Target Analyte List (TAL) for inorganics. The TCL List includes volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and polychlorinated biphenyls (PCBs). The TAL List includes 23 metals and cyanide. Supplemental analyses of soil were for asbestos and total recoverable petroleum hydrocarbons (TRPH). Soil analyses did not include pesticides. Ground water samples were not analyzed for TRPH or Pesticides.

4.2 Field Work

The site Work Plan and the site Health & Safety Plan were submitted to and approved by U.S. EPA on July 13, 2001. Field screening samples were collected and analyzed in the field in a mobile lab on-site on July 24 & 25, 2001. Ground water & soil samples were collected on July 24-26, 2001. Samples were packaged & delivered to DLZ Laboratories in Columbus, Ohio on July 27, 2001. DLZ received the samples on July 27 2001 in good condition. The E.A. Group laboratory in Mentor, Ohio received the asbestos samples on August 8, 2001 in good condition.

Soil sample collection, classification and field screening basically followed the work plan. The number of samples and parameters analyzed was rarely adjusted, due to discoveries in the field. All XRF field screening & DLZ & E.A. Group laboratory sampling locations were documented with Ohio EPA's Trimble global positioning system (GPS) unit. Personal protective procedures, sample collection, sample screening, packaging and shipping, and equipment decontamination were performed according to Ohio EPA-DERR's Field Standard Operation Procedures, 3rd Edition, September, 1998 (Ohio EPA, 1998.)

5.0 T.B.A. INVESTIGATION RESULTS

5.1 Introduction

In total, 22 lab samples and 46 field screening samples were collected for this TBA investigation. (For a narrative summary of lab sampling locations, see **Table 1**:

Mahoningside T.B.A. -- Summary of All Lab Sample Locations and Table 2: Summary of Latitude, Longitude and Elevations of All Sampling Locations for specific information.) The lab samples were sent to a VAP-Certified Laboratory and analyzed for volatile organic compounds (VOCs); semi-volatile organic compounds (SVOCs); total recoverable petroleum hydrocarbons (TRPH); polychlorinated biphenyls (PCBs); total metals and/or cyanide; and/or, asbestos.

Complete lab analytical results of soil and ground water samples from this investigation are contained in **Attachment B, Complete Analytical Results -- Geoprobe & Surface Soils**, and in **Attachment C, Complete Analytical Results -- Geoprobe & Surface Waters**, respectively. These lab results of soil and ground water samples are summarized in **Table 3, Analytical Results -- Geoprobe & Surface Soils** and **Table 4, Analytical Results -- Geoprobe & Surface Waters**, respectively. Results are any detections reported by the lab. The results were not compared with three-times background, the U.S. EPA's CRQL or CRDL requirements, nor the Machine Detection Limit. The field screening results of soil samples are provided in **Table 5, Soil Sampling Results -- XRF Metals**. Photos of the lab sampling locations have been included in **Attachment D, Photographic Log**.

5.2 Soil Samples

Seventeen total soil samples were collected and analyzed for this TBA investigation. Of these 17 samples, including 1 background and 1 duplicate. Of these 17 samples, eleven samples were surface/shallow (0-4' deep) and six samples were sub-surface (greater than 4' deep). Samples were collected from each boring at various depths. See **Figure 6, Mahoningside Sampling Locations** and **Table 3**. Asbestos & TRPH sample analyses are include at the bottom of the SVOC table of Pages 2, 4 & 6 of **Table 3**.

Eight soil borings locations were completed at the Mahoningside site, using the Ohio EPA Site Investigation Field Unit's (SIFU) Geoprobe™, a direct-push technology. One boring was co-located. Thirteen soil samples were collected from these eight borings. Continuous cores were collected in 4-foot increments from all eight holes. Coring continued until native soils were identified or refusal (shale bedrock). Refusal ranged from 4 to 22.5 feet at Geoprobe locations across the site. At least one soil sample was taken from each hole. At most of the holes, two soil samples were collected; one shallow (0-4' deep) and the second was deeper (greater than 4' deep). The samples were collected above or below 4 feet, based on VAP 4-foot rule requirement.

Boring locations were documented with the Ohio EPA Trimble GPS unit. These coordinates were then used to identified the sample location on **Figures 6, 7, 8, 9 & 10**.

The Ohio EPA performed photo-ionization detector (PID) screening of the soil samples and visual observation of the soil. The PhotoVac 3000 PID had a lamp energy of 10.6 eV and was calibrated to isobutylene, a benzene reference standard.

5.3 Debris Pile and XRF Field Screening Soil Samples

In total, forty-six field screening soil samples were collected for this TBA investigation. Field screening samples of soils from the Piles A, B & C, which remain on the site surface from the U.S. EPA Emergency Removal and from the building demolition. See **Figure 6**; and, **Table 5**. For detailed maps of each of Piles A, B & C, see, respectively, **Figure 7, Mahoningside Piles A, B & C Map**, **Figure 8, Mahoningside Pile A Map**, **Figure 9, Mahoningside Pile B Map**, and, **Figure 10, Mahoningside Pile C Map**.

5.4 Ground Water Samples

Five total ground water samples were collected and analyzed for this TBA investigation. (See **Figure 6** and **Table 4** for specific information.) Of the total 5 ground water samples, one sample was taken from each respective piezometers; and, one duplicate sample. One VOC trip blank accompanied the samples to the lab. There was no off-site background sample taken, though piezometer GP-2 (North Well) was on the upgradient end of the site; was clean; and, was considered as background.

Three ground water samples are collected from the developed piezometer wells, at the aforementioned Geoprobe™ soil boring locations. Three piezometers were installed in bore holes on the north, west & south sides around the basement of the former plant building. These three piezometers were identified as: GP-1 (South Well), GP-2 (North Well); and, GP-3 (West Well). Ground water samples were collected from these piezometers, using the inertial displacement method to access the ground water quality.

The water levels in the three piezometers were surveyed by McCabe Engineering on July 31, 2001, to determine the hydraulic gradient under the site. The triangulation of the surveyed static water levels in these three piezometers shows the gradient to be towards the southeast. (See Section 3.4 of this report and Table 2 for specific elevations.) This conclusion is based on the water levels at the following surface water locations & piezometers locations:

- 869.18' a.m.s.l. = surface water level of Mahoning River above dam
- 867.76' a.m.s.l. = piezometer GP-2 (North Well) -- static water level
- 866.68' a.m.s.l. = piezometer GP-3 (West Well) -- static water level
- 865.06' a.m.s.l. = surface water level of Foundation Basement

864.68' a.m.s.l. = piezometer GP-1 (South Well) -- static water level

861.80' a.m.s.l. = surface water level of Mahoning River below dam

[The static water levels in the piezometers and the surface water level in the basement should reflect the top of the unconsolidated aquifer above the shale bedrock.]

Since the surface water level of Mahoning River above dam was 1.42' higher than the GP-2 static water level, the river above the dam appears to be a "losing stream". A losing stream means that the river is contributing surface water to the ground water, recharging it. We are assuming that there is an inter-connection between the river and the ground water.

The static water levels of GP-2 & GP-3 are 2.70' and 1.62', respectively, higher than the basement surface water level. The levels of GP-2 & GP-3 were 3.08' and 2.00', respectively; and, were higher than GP-1 level. This infers that the unconsolidated aquifer is contributing ground water to the surface water runoff in the basement. Though surveyed only once, the surface water level of the basement should be reflective of the rise and fall of the static water levels in the piezometers.

The static water level of GP-1 is 2.88' higher than the surface water level of Mahoning River below dam. The river below the dam may be a gaining stream, which means the aquifer contributes ground water to the river. Analyses of the ground water & soil samples at the GP-1 location indicated a low-level PCB contamination present. [PCBs tend to bind with the soil; and, are held in place or move slowly in ground water.] PCB-contaminated groundwater from around the basement foundation could be slowly moving horizontally in the subsurface to the south and east -- through GP-1 -- towards the Mahoning River. However, it is likely that the shale bedrock beneath the site acts as a dependable aquitard to the downward movement of the PCBs in the ground water. Also, the shale bedrock (aquitard) -- even with its fractures -- likely protects the lower sandstone aquifer, though it was not verifiable. Per the **DR-1** boring log, there were fourteen feet of hard shale bedrock above the sandstone bedrock.

The Geoprobe™ proved to be a sufficient and cost-effective method in attaining reliable information.

5.5 Surface Water (and Sediment) Samples

One surface water sample was collected and analyzed for this TBA investigation. (See **Figure 6** and **Table 4** for specific information.) This surface water sample was taken from the standing water in the basement of the power plant foundation. The analyses was necessary for the basement water to be accepted by the City of Warren

WasteWater Treatment Plant. There was no background sample, duplicate sample nor VOC trip blank collected. No sediment samples were collected during this investigation.

5.6 Air Samples

No air samples were collected.

6.0 CONCLUSION

Ohio EPA does not draw any conclusions about the analytical results. Analytical information was provided to the City of Warren and their consultant.

7.0 REFERENCES -- CITED & UN-CITED

McCabe, 2001: Environmental Consultant and Remediation Contractor for the City of Warren; McCabe Engineering of Richfield, Ohio; (330)659-3550.

Ohio EPA-DDAGW: Non-Community and Community public water systems; Ohio EPA Division of Drinking and Ground Waters web-page was used; Columbus, Ohio; <http://www.epa.state.oh.us/ddagw/pdu/swapdw.html#pws>; 2001.

ODNR, DOW: Well Logs and Log Map Key for Trumbull County; various years; some logs were taken off the Internet site "<http://www.dnr.state.oh.us/scripts/water/wellog>"; Division of Water of Ohio Department of Natural Resources; Columbus, Ohio; 2001.

ODOT: Aerial Photography; various years of 1951, 1953, 1962, 1977, April 1980, May 1980, 1986, and 1992.; of the Mahongside site area; provided by the Bureau of Aerial Engineering of the Ohio Department of Transportation; Columbus, Ohio.

Ohio EPA-DERR: Geographic Information System (GIS) maps and data; includes U.S. Census data, sensitive environments data and map and Community and Non-community public water supply data and maps; Division of Emergency and Remedial Response (DERR) at the Central Office of the Ohio EPA; Columbus, Ohio.

Ohio EPA-DERR: Field Standard Operation Procedures, 3rd Edition, September, 1998; Division of Emergency and Remedial Response (DERR) at the Central Office of the Ohio EPA; Columbus, Ohio.

Ohio EPA-DERR: Quality Assurance Project Plan (QAPP) for Superfund Site Investigation Activities conducted by Ohio EPA; revised and dated November 1st, 1999; submitted to U.S. EPA on November 17th, 1999; Division of Emergency and Remedial Response (DERR) at the Central Office of the Ohio EPA; Columbus, Ohio.

Ohio EPA-DSW: 305(b) Report (Ohio EPA Regulations Volume 1 "Water Standards"); Division of Surface Water (DSW) at the Central Office of the Ohio EPA; Columbus, Ohio.

U.S. EPA: Emergency Removal Branch; "After-Action PCB Removal Report for the Mahoningside Power Plant Site" dated April 15, 2001 prepared by consultant, Roy F. Weston; U.S. EPA Pollution Reports (POLREPs #1, #2, 3#, #4, #5/Final), various dates in 2000 through 2001; Grosse Ile, MI.

U.S. EPA: Guidance for Performing Preliminary Assessments Under CERCLA; Washington, D.C.; September 1991.

U.S. EPA: Inter-Net web-page for the Office of Ground Water and Drinking Water of the United States Environmental Protection Agency was used as an information source of "Current Drinking Water Standards"; [Http://www.epa.gov/safewater/mcl.html](http://www.epa.gov/safewater/mcl.html).

USGS: Ohio 7.5-minute, Topographic Maps Used: "Warren, OH" quadrangle -- 1963, photo-inspected in 1984; "Champion, OH" quadrangle -- 1960, photo-inspected in 1984; U.S. Geological Survey of the U.S. Department of the Interior; Washington, DC.

Warren, 1995: City of Warren; "Phase I Environmental Site Assessment Report for the Mahoningside Power Plant", prepared by city's consultant, Innerscope of Youngstown, Ohio; September, 1995

Warren, 1997: City of Warren; "Phase II Environmental Site Assessment Report for the Mahoningside Power Plant", prepared by city's consultant, Innerscope of Youngstown, Ohio; September, 1997

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-

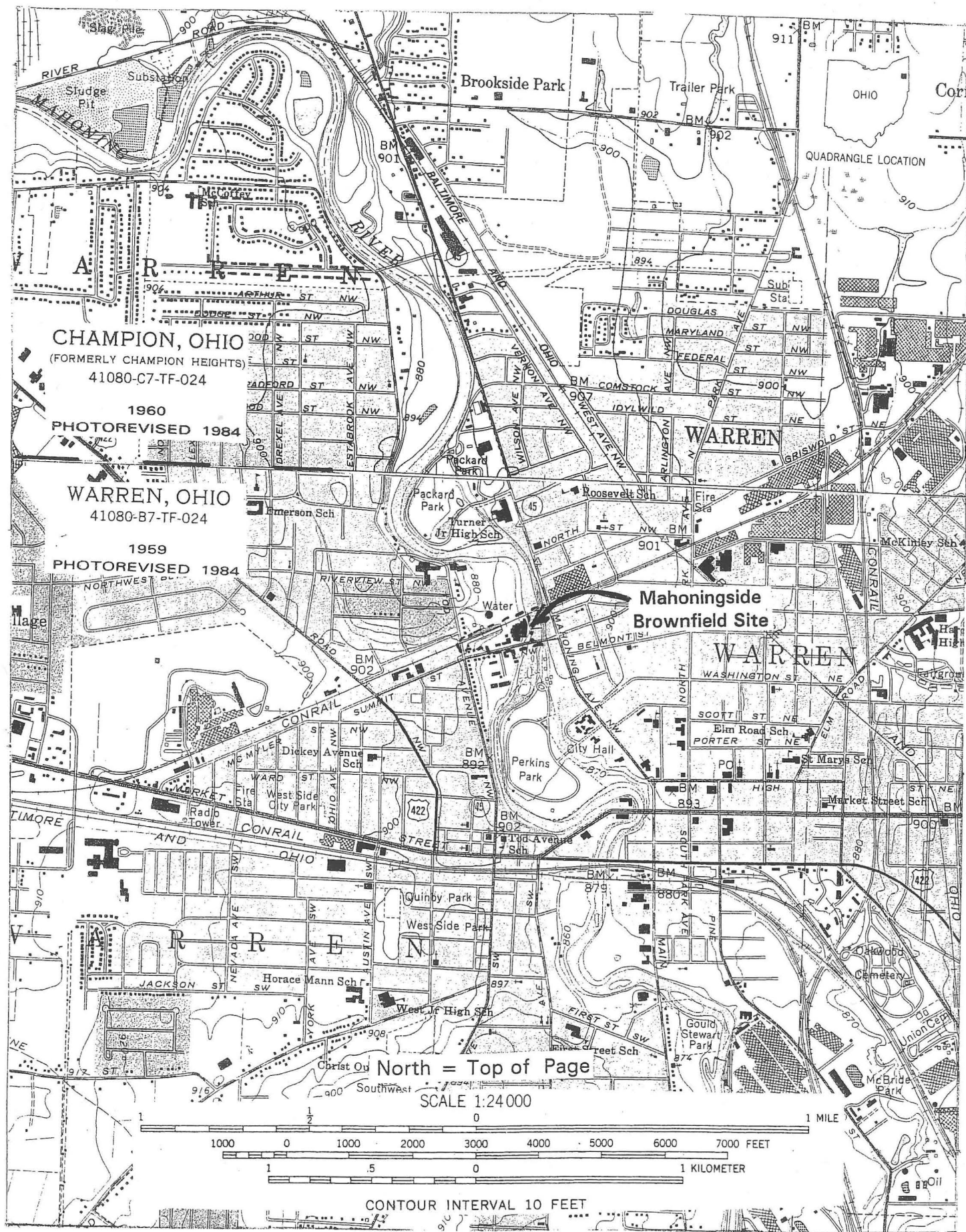


Figure 1: Mahoningside Site Location Map

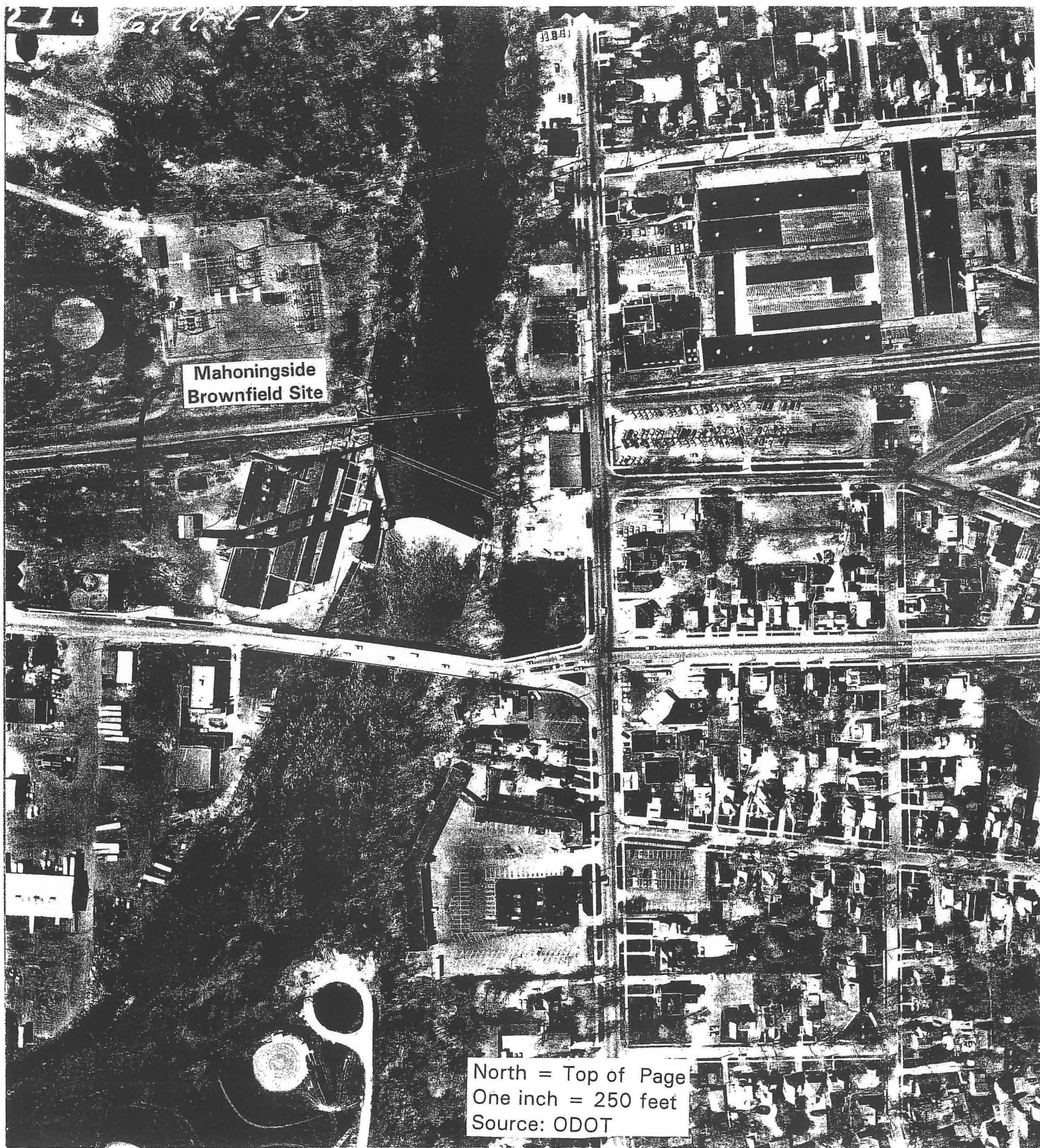
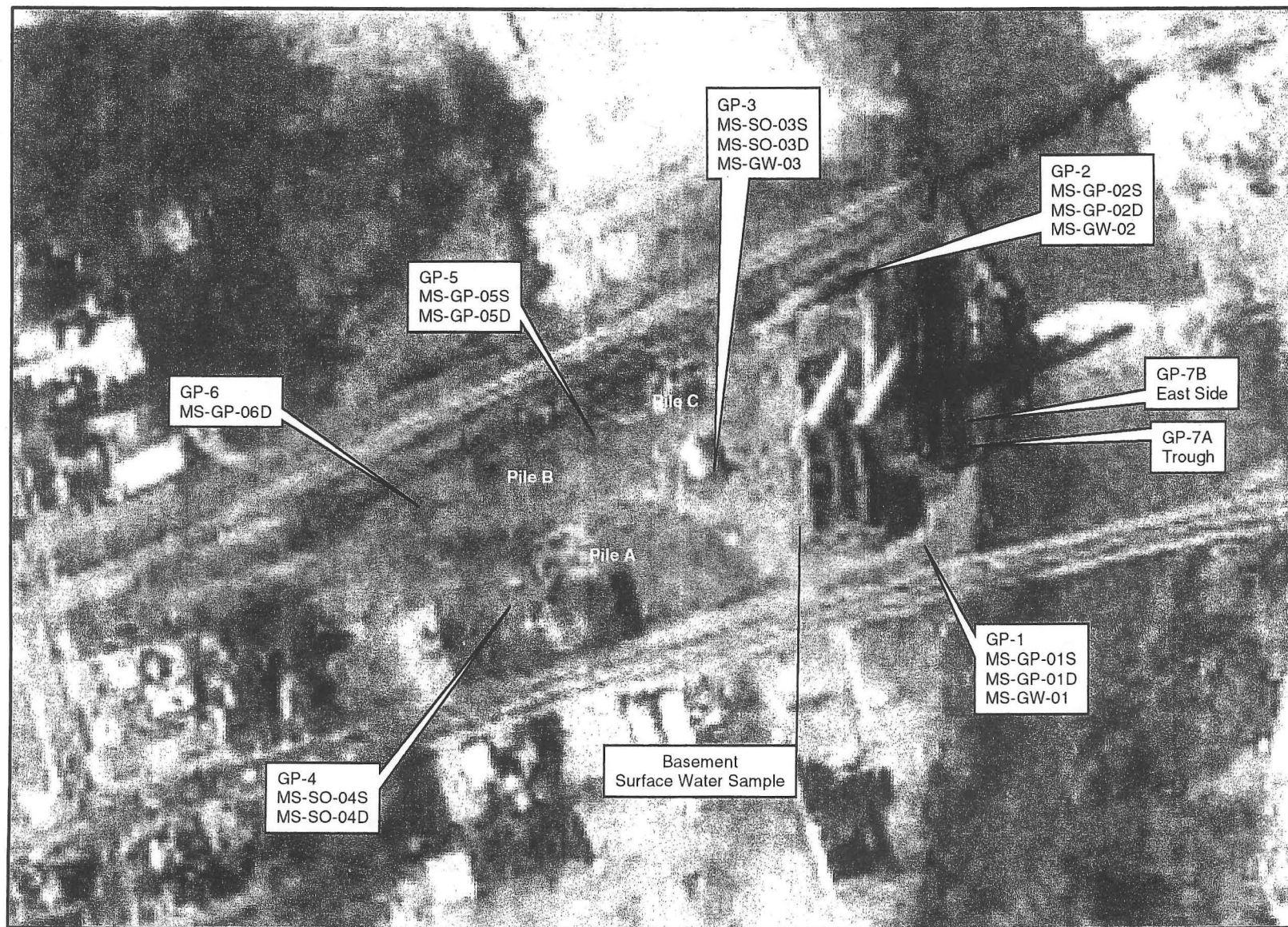


Figure 3: Mahoningside 1980 Air Photo



0 62.5 125 250 375 500 Feet



Figure 6: Mahoningside Sampling Locations Map

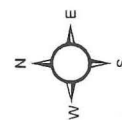
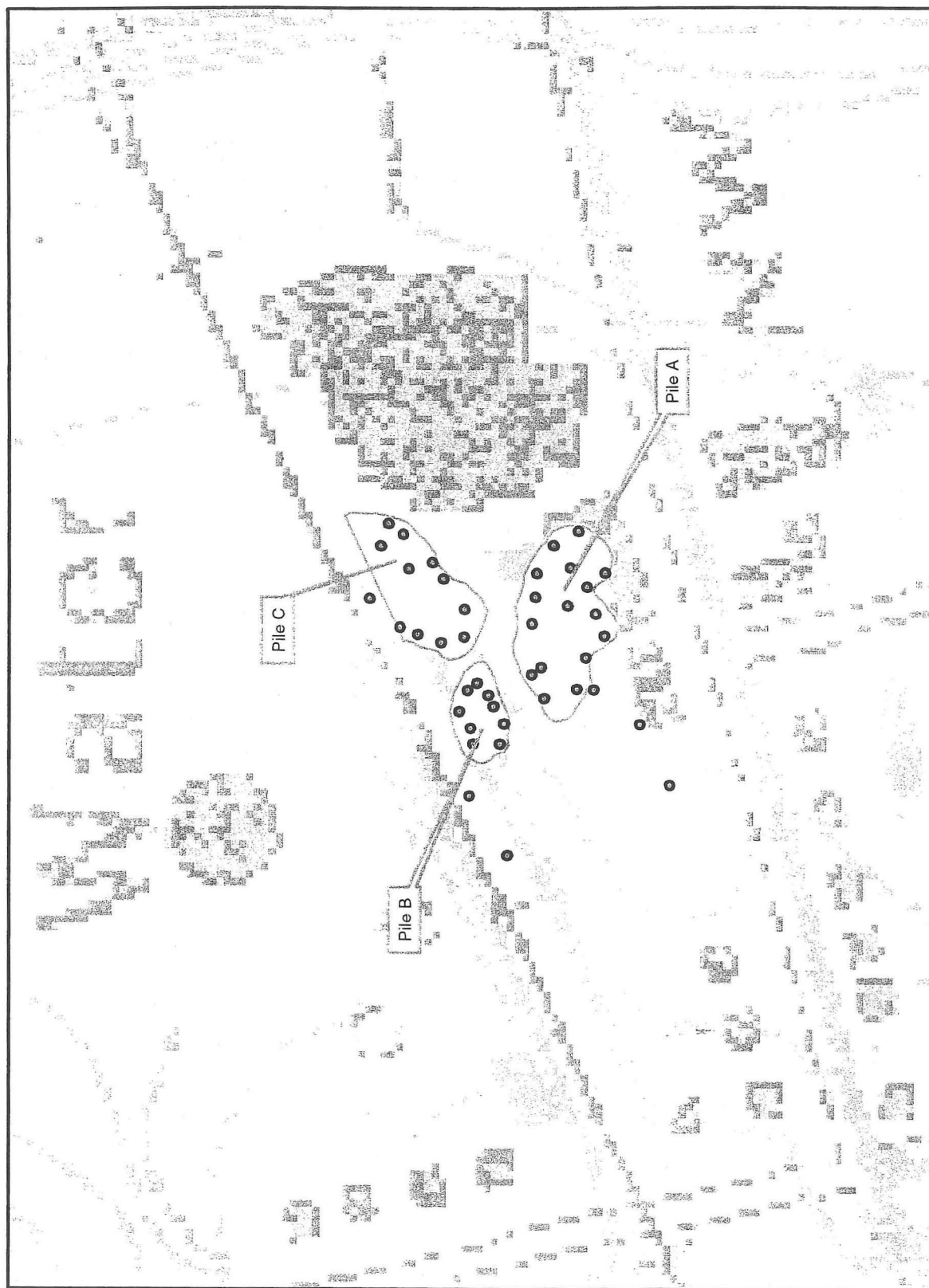


Figure 7: Mahoningside Piles A, B & C Map



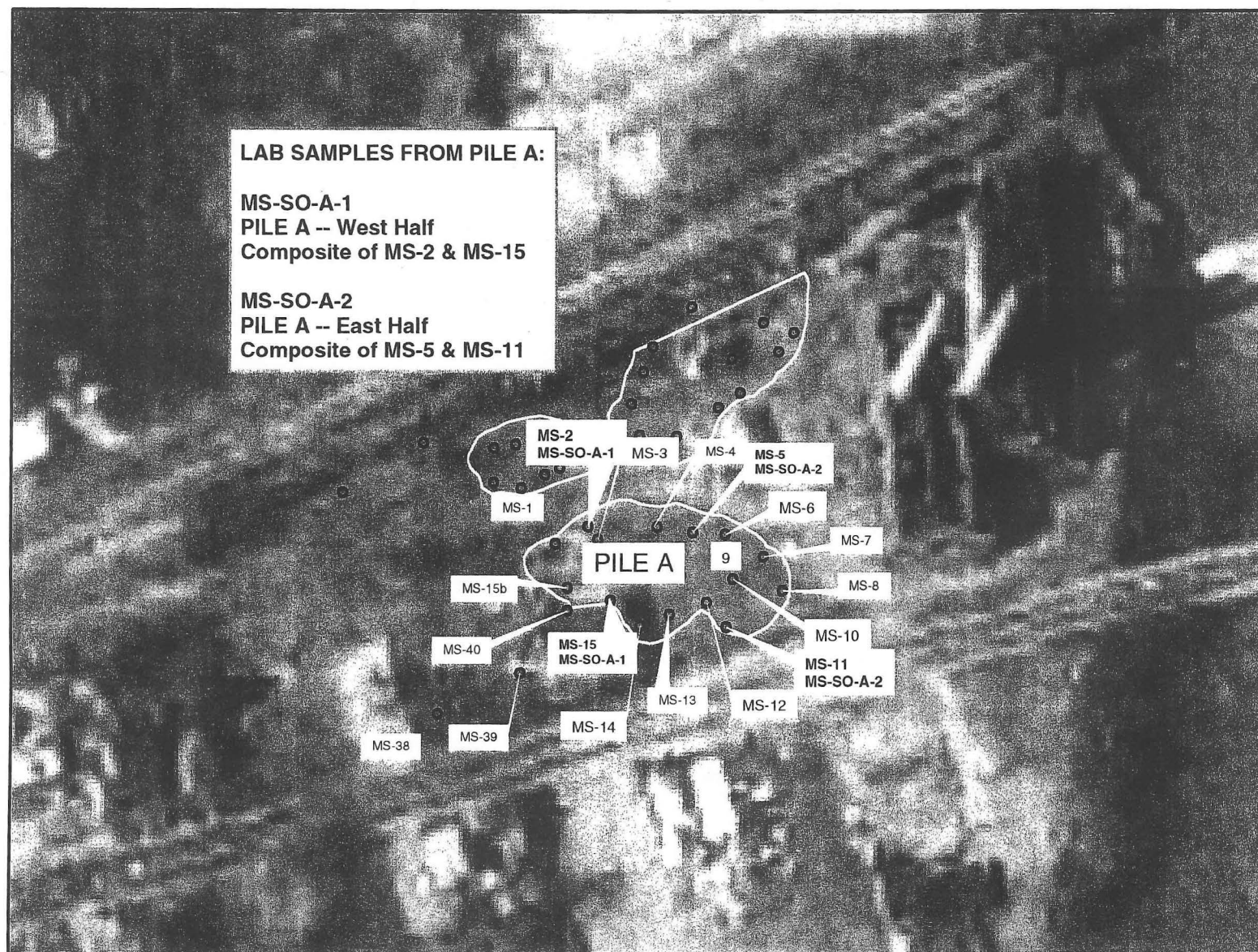
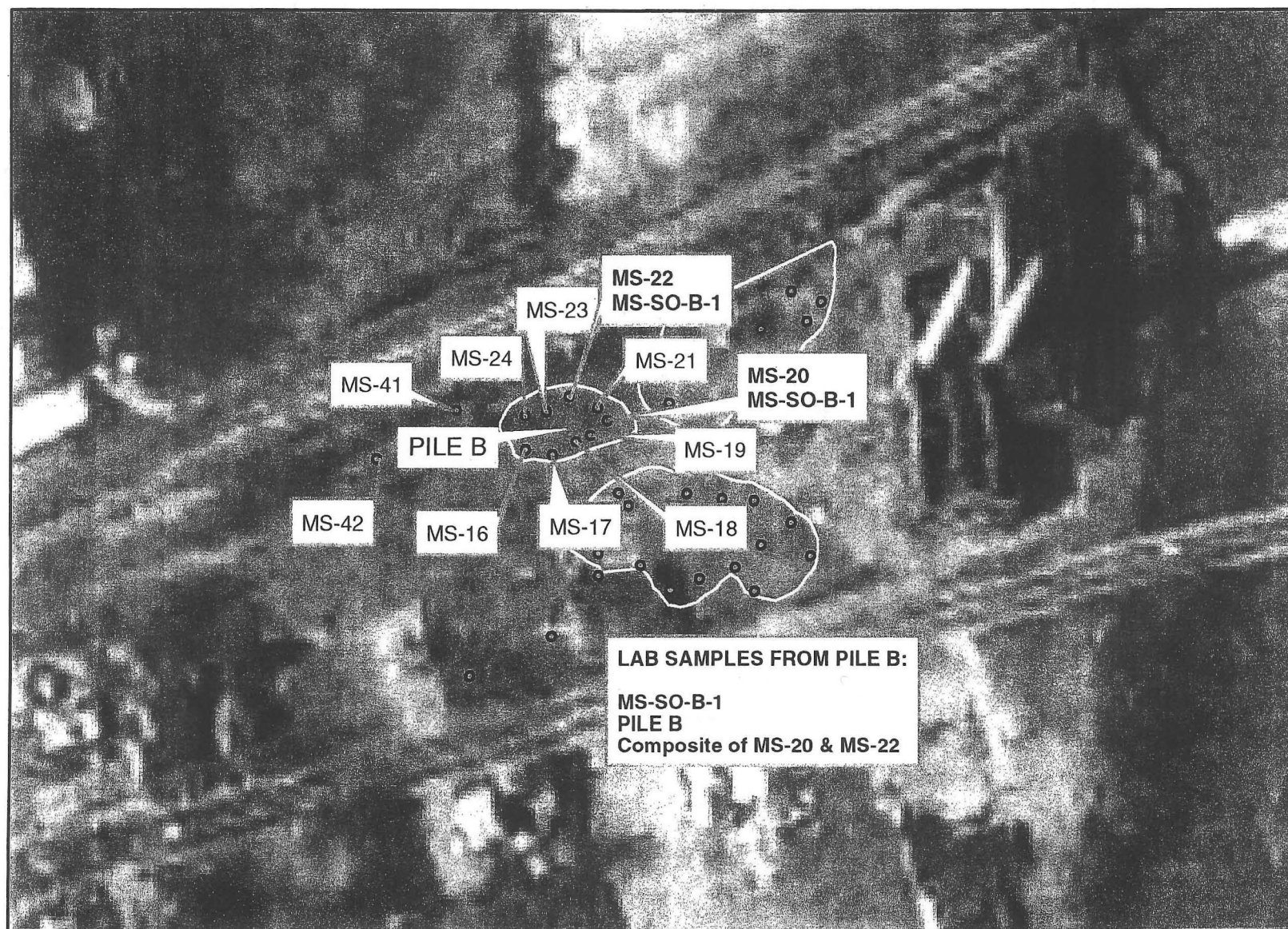


Figure 8: Mahoningside Pile A Map

0 50 100 200 300 400 Feet



0 45 90 180 270 360 Feet

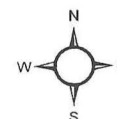
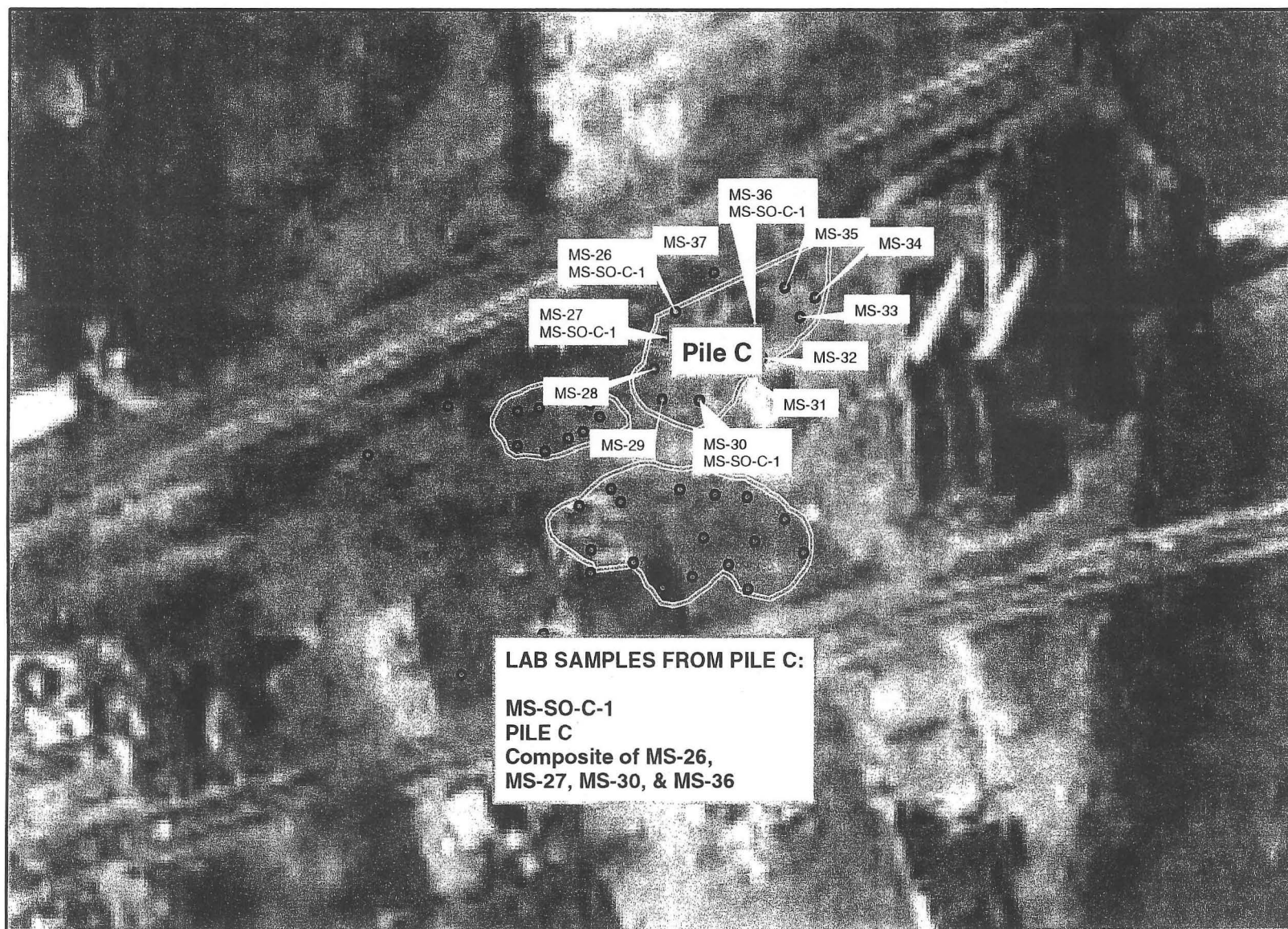


Figure 9: Mahoningside Pile B Map



0 45 90 180 270 360 Feet



Figure 10: Mahoningside Pile C Map

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| Table 5 | Soil Sampling Results -- XRF Metls (3 pages) |
-

TABLE 1:
MAHONINGSIDE T.B.A. --
SUMMARY OF ALL LAB SAMPLE LOCATIONS

- **MS-GP-01S:** Geoprobe Soil Sample Location **GP-1**; SouthEast corner of site --
near Summit Street and Mahoning River.
-- Surface Soil, 0.5-4', Analyses = **Full scan, TRPH, asbestos**
- **MS-GP-01D:** Geoprobe Soil Sample Location **GP-1**; SouthEast corner of site --
near Summit Street and Mahoning River.
-- SubSurface Soil, 4-20', Analyses = **Full scan, TRPH, asbestos**
- **MS-GP-01W:** Geoprobe Ground Water Sample Location **GP-1**; SE corner of site --
near Summit Street and Mahoning River.
-- Ground Water, 13.7-21.5', Analyses = **Full scan**

- =====
- **MS-GP-02S:** Geoprobe Soil Sample Location **GP-2**; NorthEast corner of site --
near railroad tracks and Mahoning River.
-- Surface Soil, 1-4', Analyses = **VOC**
 - **MS-GP-02D:** Geoprobe Soil Sample Location **GP-2**; NorthEast corner of site --
near railroad tracks and Mahoning River.
-- SubSurface Soil, 7.5-22.5', Analyses = **Full scan, TRPH, asbestos**
 - **MS-GP-02W:** Geoprobe Ground Water Sample Location **GP-2**; NE corner of site --
near railroad tracks and Mahoning River.
-- Ground Water, 14.2-21.1', Analyses = **Full scan**

- =====
- **MS-SO-A-1:** **South Debris Pile A -- West Half**; Soil Sample Location;
South central portion of the site; near Summit St.;
Composite of XRF Locations MS-2 & MS-15.
-- Surface Soil, 0-1', Analyses = **Full scan, TRPH, asbestos**
 - **MS-SO-A-2:** **South Debris Pile A -- East Half**; Soil Sample Location;
South central portion of the site; near Summit St.;
Composite of XRF Locations MS-5 & MS-11.
-- Surface Soil, 0-1', Analyses = **Full scan, TRPH, no asbestos**

- =====
- **MS-SO-B-1:** **NorthWest Debris Pile B**; Soil Sample Location;
NorthWest central portion of site; near railroad tracks;
Composite of XRF Locations MS-20 and MS-22.
-- Surface Soil, 0-0.5', Analyses = **Full scan, TRPH, asbestos**
- =====

TABLE 1

MAHONINGSIDE -- SUMMARY OF ALL LAB SAMPLE LOCATIONS (continued)

- **MS-SO-C-1: North Debris Pile C; Soil Sample Location;**
 North central portion of site; near railroad tracks; Composite
 of XRF Locations MS-26, MS-27, MS-30, & MS-36.
 -- Surface Soil, 0-0.5', Analyses = **Full scan, TRPH, asbestos**
 =====
- **Basement; Surface Water Sample Location;**
 East portion of site; ground water and surface water runoff in
 southwest corner of former power plant foundation.
 -- Surface Water, Analyses = Total Metals, Cyanide
 =====
- **MS-SO-03S: Geoprobe Soil Sample Location GP-3;**
 immediately west of power plant foundation.
 -- Surface Soil, 0-4', Analyses = **Full scan, TRPH, asbestos**
- **MS-SO-03D: Geoprobe Soil Sample Location GP-3;**
 immediately west of power plant foundation.
 -- SubSurface Soil, 5-13', Analyses = **Full scan, TRPH, asbestos**
- **MS-GP-03W: Geoprobe Ground Water Sample Location GP-3;**
 immediately west of power plant foundation.
 -- Ground Water, 10.5-18.3', Analyses = **Full scan, TRPH**
 =====
- **MS-SO-04S: Geoprobe Soil Sample Location GP-4; west of cooling tower building.**
 -- Surface Soil, 0.5-3', Analyses = **Full scan, TRPH, asbestos**
- **MS-SO-04D: Geoprobe Soil Sample Location GP-4; west of cooling tower building.**
 -- SubSurface Soil, 5-12', Analyses = **Full scan, TRPH, asbestos**
 =====
- **MS-SO-05S: Geoprobe Soil Sample Location GP-5; near railroad tracks;**
 North central portion of site; between Piles B & C.
 -- Surface Soil, 0.5-4', Analyses = **Full scan, TRPH, asbestos**
- **MS-SO-05D: Geoprobe Soil Sample Location GP-5; near railroad tracks;**
 North central portion of site; between Piles B & C.
 -- SubSurface Soil, 13-14', Analyses = **Full scan, TRPH, asbestos**
 =====
- **MS-SO-06D: Geoprobe Soil Sample Location GP-6; near railroad tracks;**
 Central portion of site; west of Piles B.
 -- SubSurface Soil, 4.5-8', Analyses = **Full scan, TRPH, asbestos**
 =====
- **Trough and duplicate, East Side: Geoprobe Soil Sample Locations GP-7A & GP-7B;**
 near Pump House building and Mahoning River;
 Composite of two co-located holes along abutment above river.
 -- SubSurface Soil, 0-4', Analyses = **Full scan, TRPH, asbestos**

**Table 2: Summary of
Latitude, Longitude and Elevations
of All Sampling Locations**

< === ELEVATIONS SURVEYED BY McCABE === >										
Geoprobe Locations, Ohio EPA Sampling Locations	< ===== LATITUDE. ===== >			< ===== LONGITUDE ===== >			G.P.S. ELEVATIONS	SURFACE ELEVATION	STATIC WATER LEVEL	BOTTOM OF WELL
	degrees	minutes	seconds	degrees	minutes	seconds	feet - a.m.s.l.	feet - a.m.s.l.	feet - a.m.s.l.	feet - a.m.s.l.
GP-4, MS-GP-4	41	14	35.3623593	80	49	46.1886521	874.25	----	----	----
GP-3, MS-SO-3	41	14	36.7889739	80	49	43.2491441	874.932	----	----	----
GP-1, MS-SO-01	41	14	35.9446104	80	49	40.2581865	875.142	----	----	+
GP-7A, MS-GP-7A	41	14	37.0087617	80	49	39.5977389	876.748	----	----	----
GP-7B, MS-GP-7B	41	14	37.2886493	80	49	39.6220255	876.9	----	----	----
GP-2, MS-SO-02	41	14	38.874621	80	49	41.2850133	877.768	----	----	----
GP-5, MS-GP-5	41	14	37.2092886	80	49	44.9533972	871.995	----	----	----
GP-6, MS-GP-6	41	14	36.455977	80	49	47.4654748	874.134	----	----	----
<hr/>										
BASEMENT S.W.	41	14	36.1723278	80	49	42.0369502	862.893	865.06	----	----
<hr/>										
GP-2, MS-GW-02	41	14	38.8755312	80	49	41.2827527	877.436	881.96	867.76	860.86
GP-3, MS-GW-3	41	14	36.7912754	80	49	43.2478862	874.847	877.3	866.68	859.0
GP-1, MS-GW-01	41	14	35.9455952	80	49	40.2587383	874.795	878.38	864.68	856.88
<hr/>										
<u>Locations Surveyed by McCabe Eng.</u>										
Main Deck Level	----	----	----	----	----	----	----	880.75	----	----
Upper Mahoning River	----	----	----	----	----	----	----	869.18	----	----
Basement Water Level	----	----	----	----	----	----	----	865.06	----	----
Lower Mahoning River	----	----	----	----	----	----	----	861.8	----	----
Basement Floor	----	----	----	----	----	----	----	860.75	----	----
South Sump Floor	----	----	----	----	----	----	----	852.75	----	----

NOTE: " a.m.s.l." = above mean sea level.

Mahoningside
TBA Investigation
July 24-26, 2001

**Table 2: Summary of
Latitude, Longitude and Elevations
of All Sampling Locations**

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6/5/2002
10:00 AM

		< ===== LATITUDE ===== >			< ===== LONGITUDE ===== >			G.P.S. ELEVATIONS	< === ELEVATIONS SURVEYED BY McCABE === >		
Ohio EPA XRF Sampling Locations		degrees	minutes	seconds	degrees	minutes	seconds	feet - a.m.s.l.	SURFACE ELEVATION feet - a.m.s.l.	STATIC WATER LEVEL feet - a.m.s.l.	BOTTOM OF WELL feet - a.m.s.l.
MS-1		41	14	36.13453093	80	49	45.46714151	874.646	---	---	---
MS-2		41	14	36.2668475	80	49	45.1226781	876.58	---	---	---
MS-4		41	14	36.25095224	80	49	44.39436062	876.592	---	---	---
MS-3		41	14	36.16167249	80	49	45.02168499	877.142	---	---	---
MS-5		41	14	36.20402905	80	49	44.02160732	875.459	---	---	---
MS-6		41	14	36.18430157	80	49	43.67903637	871.915	---	---	---
MS-7		41	14	35.99974088	80	49	43.28076	877.889	---	---	---
MS-8		41	14	35.72711028	80	49	43.08259431	876.039	---	---	---
MS-10		41	14	35.82427071	80	49	43.60767041	882.154	---	---	---
MS-9		41	14	35.86250851	80	49	44.15054204	885.055	---	---	---
MS-11		41	14	35.44567503	80	49	43.68742503	876.415	---	---	---
MS-12		41	14	35.64464457	80	49	43.88961604	878.001	---	---	---
MS-13		41	14	35.5544988	80	49	44.27588909	879.895	---	---	---
MS-14		41	14	35.46670088	80	49	44.59097591	873.777	---	---	---
MS-15		41	14	35.67495059	80	49	44.8979202	881.122	---	---	---
MS-15b		41	14	35.77895257	80	49	45.35034094	877.973	---	---	---
MS-16		41	14	36.62779898	80	49	46.11119389	880.203	---	---	---
MS-17		41	14	36.57917912	80	49	45.82025516	879.392	---	---	---
MS-18		41	14	36.68221545	80	49	45.56875101	881.73	---	---	---
MS-19		41	14	36.73416873	80	49	45.41204657	880.457	---	---	---
MS-20		41	14	36.8560313 +	80	49	45.23230408	879.505	---	---	---
MS-21		41	14	36.96206721	80	49	45.33387823	879.954	---	---	---
MS-22		41	14	37.05944979	80	49	45.63523133	879.59	---	---	---
MS-23		41	14	36.93789133	80	49	45.87701951	878.293	---	---	---
MS-24		41	14	36.91162818	80	49	46.10622961	881.002	---	---	---
MS-26		41	14	37.69580801	80	49	44.41260953	881.44	---	---	---
MS-27		41	14	37.49665384	80	49	44.5164042	881.063	---	---	---
MS-28		41	14	37.24270133	80	49	44.64444088	876.509	---	---	---
MS-29		41	14	36.98967718	80	49	44.56686827	879.305	---	---	---
MS-30		41	14	36.97736884	80	49	44.17284722	879.569	---	---	---
MS-31		41	14	37.20062869	80	49	43.73196598	878.014	---	---	---
MS-32		41	14	37.31732413	80	49	43.49616791	876.656	---	---	---
MS-33		41	14	37.63705825	80	49	43.08556528	881.191	---	---	---
MS-34		41	14	37.7930943	80	49	42.92603597	879.596	---	---	---
MS-35		41	14	37.87996262	80	49	43.24675389	882.961	---	---	---
MS-36		41	14	37.58477766	80	49	43.57661793	890.079	---	---	---
MS-37		41	14	38.0108919	80	49	44.00028233	893.159	---	---	---
MS-38		41	14	34.79876308	80	49	46.75441014	875.114	---	---	---
MS-39		41	14	35.1086191	80	49	45.8710568	875.998	---	---	---
MS-40		41	14	35.59595338	80	49	45.35704877	878.812	---	---	---
MS-41		41	14	36.96666329	80	49	46.84644901	879.206	---	---	---
MS-42		41	14	36.57350699	80	49	47.70840971	878.611	---	---	---

Table 3:
Analytical Results --
Geoprobe and Surface Soils --
SVOCs

Ohio EPA Sample ID # :	MS-GP-01S	MS-GP-01D	MS-GP-02S	MS-GP-02D	MS-GP-03S	MS-GP-03D
Ohio EPA Sampling Location :	GP-1	GP-1	GP-2	GP-2	GP-3	GP-3
Matrix :	Soil	Soil	Soil	Soil	Soil	Soil
Units :	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Date & Time Sampled :	07/25/01, 10:50	07/25/01, 11:00	07/25/01, 12:45	07/25/01, 12:50	07/26/01, 09:00	07/26/01, 09:00
Sample Depth (feet) :	0.5-4' -- Shallow	4-20' -- Deep	1-4' -- Shallow	7.5-22.5' -- Deep	0-4' -- Shallow	5-13' -- Deep
QA / QC Information :	-----	-----	-----	-----	-----	-----
<i>Semi-Volatile Compound</i>	<i>Result</i>	<i>Result</i>	<i>Result</i>	<i>Result</i>	<i>Result</i>	<i>Result</i>
Naphthalene	ND	ND	1020	ND	1670	8330
Acenaphthene	ND	ND	ND	ND	ND	2980
Fluorene	ND	ND	ND	ND	ND	5090
Phenanthrene	ND	1030	1100	ND	1040	27500
Anthracene	ND	ND	ND	ND	ND	7720
Fluoranthene	2210	2280	522	ND	ND	21300
Pyrene	2900	1850	494	ND	ND	15500
Benzo(a)anthracene	1650	ND	ND	ND	ND	6990
Chrysene	1510	2280	436	ND	ND	6570
Benzo(b)fluoranthene	2110	1430	524	ND	ND	8920
Benzo(a)pyrene	1270	895	ND	ND	ND	5120
Indeno(1,2,3-cd)pyrene	486	ND	ND	ND	ND	2410
Benzo(g,h,i)perylene	479	ND	ND	ND	ND	2750

<i>Miscellaneous Parameters</i>	<i>Result</i>	<i>Result</i>	<i>Result</i>	<i>Result</i>	<i>Result</i>	<i>Result</i>
TRPH	240	ND	47	ND	400	170
% CHRYSOLITE ASBESTO	OBSERVED	ND	OBSERVED	ND	OBSERVED	OBSERVED
% AMOSITE ASBESTOS *	ND	ND	ND	ND	ND	N/A
% OTHER NON-ASBESTOS MATERI	OBSERVED	OBSERVED	OBSERVED	OBSERVED	OBSERVED	OBSERVED
PERCENT SOLIDS	84 / 88	71 / 74	86 / 88	75 / 89	89	81 / 76

* = Due to the nature of the asbestos sample (dust, debris, soil or vacuum), percentages of the constituents could not be assigned
OBSERVED = Asbestos or Non-Asbestos materials were observed by the lab.
TRPH = Total Recoverable Petroleum Hydrocarbons (TRPH)

Table 3:
Analytical Results --
Geoprobe and Surface Soils --
SVOCs

Ohio EPA Sample ID # :	MS-SO-04S	MS-SO-04D	MS-SO-05S	MS-SO-05D	-----	-----
Ohio EPA Sampling Location :	GP-4	GP-4	GP-5	GP-5	Trough	East Side
Matrix :	Soil	Soil	Soil	Soil	Soil	Soil
Units :	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Date & Time Sampled :	07/26/01, 11:30	07/26/01, 11:45	07/26/01, 12:00	07/26/01, 12:30	07/26/01, 13:00	07/26/01, 13:30
Sample Depth (feet) :	0.5-3' -- Shallow	5-12' -- Deep	0.5-4' -- Shallow	13-14' -- Deep	0-4' -- Shallow	0-4' -- Shallow
QA / QC Information :	-----	-----	-----	-----	-----	Dup. of Trough
Semi-Volatile Compound	Result	Result	Result	Result	Result	Result
Naphthalene	1730	ND	ND	ND	ND	ND
Phenanthrene	1480	566	789	ND	574	826
Fluoranthene	1130	639	1100	ND	1830	2160
Pyrene	964	528	801	ND	1780	2030
Benzo(a)anthracene	ND	ND	511	ND	1440	1250
Chrysene	946	ND	472	ND	1350	1150
Benzo(b)fluoranthene	1710	406	857	ND	2590	2270
Benzo(a)pyrene	ND	ND	396	ND	1300	1210
Indeno(1,2,3-cd)pyrene	ND	ND	ND	ND	661	670
Dibenzo(a,h)anthracene	ND	ND	ND	ND	423	434
Benzo(g,h,i)perylene	ND	ND	ND	ND	655	678

Miscellaneous Parameters	Result	Result	Result	Result	Result	Result
TRPH	190	ND	2000	66	650	520
% CHRYSOLITE ASBESTO	ND	ND	OBSERVED	OBSERVED	OBSERVED	NSF
% AMOSITE ASBESTOS *	ND	ND	ND	ND	ND	NSF
% OTHER NON-ASBESTOS MATERI	OBSERVED	OBSERVED	OBSERVED	OBSERVED	OBSERVED	NSF
PERCENT SOLIDS	86 / 86	83	89	77	86	87

* = Due to the nature of the asbestos sample (dust, debris, soil or vacuum), percentages of the constituents could not be assigned
OBSERVED = Asbestos or Non-Asbestos materials were observed by the lab.
TRPH = Total Recoverable Petroleum Hydrocarbons (TRPH)

Table 3:
Analytical Results --
Geoprobe and Surface Soils --
SVOCs

Ohio EPA Sample ID # :	MS-SO-06D	MS-SO-A-1	MS-SO-A-2	MS-SO-B-1	MS-SO-C-1	-----
Ohio EPA Sampling Location :	GP-6	Pile A (W. Half)	Pile A (E. Half)	Pile B	Pile C	RAS -- CRDL
Matrix :	Soil	Soil	Soil	Soil	Soil	Soil
Units :	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Date & Time Sampled :	07/26/01, 13:00	07/25/01, 15:15	07/25/01, 16:00	07/26/01, 08:00	07/26/01, 10:00	-----
Sample Depth (feet) :	4-5.8' -- Deep	0-1' -- Shallow	0-0.5' -- Shallow	0-0.5' -- Shallow	0-0.5' -- Shallow	-----
QA / QC Information :	-----	-----	-----	-----	-----	RAS -- CRDL
Semi-Volatile Compound	Result	Result	Result	Result	Result	Result
Naphthalene	ND	ND	ND	1650	ND	330
Phenanthrene	ND	1280	1940	1900	1900	330
Fluoranthene	ND	2740	3070	2190	4170	330
Pyrene	ND	2620	2850	1820	3130	330
Benzo(a)anthracene	ND	1660	1570	910	1500	330
Chrysene	ND	1620	1630	1030	1510	330
Benzo(b)fluoranthene	ND	3110	2950	1920	3060	330
Benzo(a)pyrene	ND	1630	1490	901	1550	330
Indeno(1,2,3-cd)pyrene	ND	914	900	ND	1080	330
Benzo(g,h,i)perylene	ND	1040	998	ND	1190	330

Miscellaneous Parameters	Result	Result	Result	Result	Result	Result
TRPH	470	870	810	700	780	N/A
% CHRYSOLITE ASBESTO	ND	OBSERVED	NSF	OBSERVED	OBSERVED	N/A
% AMOSITE ASBESTOS *	ND	OBSERVED	NSF	ND	ND	N/A
% OTHER NON-ASBESTOS MATER	OBSERVED	OBSERVED	NSF	OBSERVED	OBSERVED	N/A
PERCENT SOLIDS	81	84 / 94	87 / 94	89 / 83	85	N/A

* = Due to the nature of the asbestos sample (dust, debris, soil or vacuum), percentages of the constituents could not be assigned
OBSERVED = Asbestos or Non-Asbestos materials were observed by the lab.
TRPH = Total Recoverable Petroleum Hydrocarbons (TRPH)

Table 3:
Analytical Results --
Geoprobe and Surface Soils --
PCBs

Ohio EPA Sample ID # :	MS-GP-01S	MS-GP-01D	MS-GP-02S	MS-GP-02D	MS-GP-03S	MS-GP-03D
Ohio EPA Sampling Location :	GP-1	GP-1	GP-2	GP-2	GP-3	GP-3
Matrix :	Soil	Soil	Soil	Soil	Soil	Soil
Units :	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Date & Time Sampled :	07/25/01, 10:50	07/25/01, 11:00	07/25/01, 12:45	07/25/01, 12:50	07/26/01, 09:00	07/26/01, 09:00
Sample Depth (feet) :	0.5-4' -- Shallow	4-20' -- Deep	1-4' -- Shallow	7.5-22.5' -- Deep	0-4' -- Shallow	5-13' -- Deep
QA / QC Information :	-----	-----	-----	-----	-----	-----
Pesticide / PCB Compound	Result	Result	Result	Result	Result	Result
Aroclor-1260	1.1	0.161	0.322	ND	0.73	0.382

Ohio EPA Sample ID # :	MS-SO-04S	MS-SO-04D	MS-SO-05S	MS-SO-05D	-----	-----
Ohio EPA Sampling Location :	GP-4	GP-4	GP-5	GP-5	Trough	East Side
Matrix :	Soil	Soil	Soil	Soil	Soil	Soil
Units :	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Date & Time Sampled :	07/26/01, 11:30	07/26/01, 11:45	07/26/01, 12:00	07/26/01, 12:30	07/26/01, 13:00	07/26/01, 13:30
Sample Depth (feet) :	0.5-3' -- Shallow	5-12' -- Deep	0.5-4' -- Shallow	13-14' -- Deep	0-4' -- Shallow	0-4' -- Shallow
QA / QC Information :	-----	-----	-----	-----	-----	Dup. of Trough
Pesticide / PCB Compound	Result	Result	Result	Result	Result	Result
Aroclor-1260	0.641	ND	0.21	1.1	65.1	66.5

Ohio EPA Sample ID # :	MS-SO-06D	MS-SO-A-1	MS-SO-A-2	MS-SO-B-1	MS-SO-C-1	-----
Ohio EPA Sampling Location :	GP-6	Pile A (W. Half)	Pile A (E. Half)	Pile B	Pile C	RAS -- CRDL
Matrix :	Soil	Soil	Soil	Soil	Soil	Soil
Units :	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Date & Time Sampled :	07/26/01, 13:00	07/25/01, 15:15	07/25/01, 16:00	07/26/01, 08:00	07/26/01, 10:00	-----
Sample Depth (feet) :	4-5.8' -- Deep	0-1' -- Shallow	0-1' -- Shallow	0-0.5' -- Shallow	0-0.5' -- Shallow	-----
QA / QC Information :	-----	-----	-----	-----	-----	RAS -- CRDL
Pesticide / PCB Compound	Result	Result	Result	Result	Result	Result
Aroclor-1260	ND	159	13.8	5.63	13.1	33

STANDARD ABBREVIATIONS: B = Analyte in associated blank and in sample (method blank contamination) or estimate value;
CLP = Contract Lab Program; CRL = Central Regional Laboratory; CRDL = Contract Required Detection Limit;
CRQL = Contract Required Quantification Limit; GW = ground water; J = estimated value; N/A = Not Applicable; ND= Not Detected;
D = Metals--Matrix Spike Duplicate; D or DL = diluted; E = estimated - exceeds GC's upper calibration limit; G = Elevated reporting level;
M = Analyte is confirmed to be qualitatively present in the sample, extract or digest; and is at or above the MDL, but below CRL.
NSF = Not Sampled For; MS = Matrix Spike; MSD = Matrix Spike Duplicate; P = lower of two GC columns reported;
S = Metals--Matrix Spike Duplicate; SE = sediment sample; SO = soil sample; TCLP = Toxicity Characteristic Leaching Procedure
R = Rejected -- data are unusable (analyte may or may not be present); RE = Re-analyzed by lab;
TICs = Tentatively Identified Compounds; ug/L = PPB = ug/kg = ng/gm; mg/L = PPM = mg/kg = ug/mL = ug/gm = ng/mg;
U and UJ = analyte analyzed for, but not detected above the reported quantification limit; and, X = GC could not distinguish peaks.
VS = Volatile samples have analyte concentrations reported at or above the CRQL and more than or equal to the method blank concentration. The associated method blank concentration is more than or equal to the concentration criteria. Hits are qualified VS.

Table 3:
Analytical Results --
Geoprobe and Surface Soils --
Total Metals

Ohio EPA Sample ID # :	MS-GP-01S GP-1	MS-GP-01D GP-1	MS-GP-02S GP-2	MS-GP-02D GP-2	MS-GP-03S GP-3	MS-GP-03D GP-3
Ohio EPA Sampling Location :	Soil	Soil	Soil	Soil	Soil	Soil
Matrix :	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Units :	07/25/01, 10:50	07/25/01, 11:45	07/25/01, 12:45	07/25/01, 12:50	07/26/01, 09:00	07/26/01, 09:00
Date & Time Sampled :	0.5-4' -- Shallow	4-20' -- Deep	1-4' -- Shallow	7.5-22.5' -- Deep	0-4' -- Shallow	5-13' -- Deep
Sample Depth (feet) :	-----	-----	-----	-----	-----	-----
QA / QC Information :						
ANALYTE	Result	Result	Result	Result	Result	Result
ALUMINUM	6780	3530	9760	4290	6980	9590
ARSENIC	26.2	9.11	19.6	6.28	31.9	4.43
BARIUM	79.3	24.3	128	42.2	117	71.2
CALCIUM	36500	2180	39500	8830	28300	29000
CADMIUM	0.567	ND	ND	ND	0.623	ND
COBALT	3.96	4.36	4.15	3.73	ND	5.88
CHROMIUM	51.3	6.48	7.59	5.8	11.2	6.03
COPPER	60.1	10.6	23	8.01	50.3	15
IRON	13200	10700	13500	8420	23700	10700
MERCURY	0.205	0.127	0.225	ND	0.367	0.526
POTASSIUM	511	445	653	351	631	504
MAGNESIUM	6100	1000	2920	895	4250	2310
MANGANESE	1220	186	1420	332	874	755
SODIUM	238	97.5	198	ND	336	154
NICKEL	16.6	8.12	7.72	6.67	12	18.8
LEAD	88.7	14.7	24.2	9.76	60.5	21.9
SELENIUM	0.563	ND	0.769	ND	0.941	ND
VANADIUM	15.5	7.6	8.02	5.99	10.1	6.69
ZINC	184	39	62.3	30.6	251	125

STANDARD ABBREVIATIONS:

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CLP = Contract Lab Program; CRL = Central Regional Laboratory; CRDL = Contract Required Detection Limit;

CRQL = Contract Required Quantification Limit; GW = ground water; J = estimated value; MS = Matrix Spike; MSD = Matrix Spike Duplicate;

D = Metals--Matrix Spike Duplicate; D or DL = diluted; E = estimated - exceeds GC's upper calibration limit; G = Elevated reporting level;

M = Analyte is confirmed to be qualitatively present in the sample, extract or digest; and is at or above the MDL, but below CRL.

N/A = Not Applicable; ND= Not Detected; NR = Not Reported; NSF = Not Sampled For; P = lower of two GC columns reported;

R = Rejected -- data are unusable (analyte may or may not be present); RE = Re-analyzed by lab;

S = Metals--Matrix Spike Duplicate; SE = sediment sample; SO = soil sample; TCLP = Toxicity Characteristic Leaching Procedure

TICs = Tentatively Identified Compounds; U and UJ = analyte analyzed for, but not detected above the reported quantification limit;

ug/L = PPB = ug/kg = ng/gm; mg/L = PPM = mg/kg = ug/mL = ug/gm = ng/mg; and, X = GC could not distinguish peaks.

Table 3:
Analytical Results --
Geoprobe and Surface Soils --
Total Metals

Ohio EPA Sample ID # :	MS-SO-04S	MS-SO-04D	MS-SO-05S	MS-SO-05D	-----	-----
Ohio EPA Sampling Location	GP-4	GP-4	GP-5	GP-5	Trough	East Side
Matrix :	Soil	Soil	Soil	Soil	Soil	Soil
Units :	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Date & Time Sampled :	07/25/01, 14:35	07/26/01, 11:45	07/26/01, 12:00	07/26/01, 12:30	07/26/01, 13:00	07/26/01, 13:30
Sample Depth (feet) :	0.5-3' -- Shallow	5-12' -- Deep	0.5-4' -- Shallow	13-14' -- Deep	0-4' -- Shallow	0-4' -- Shallow
QA / QC Information :	-----	-----	-----	-----	-----	Dup. of Trough
ANALYTE	Result	Result	Result	Result	Result	Result
ALUMINUM	1380	2400	5520	6680	8430	7940
ARSENIC	69.3	11.5	3.51	3.14	36.3	24.9
BARIUM	80.1	33.6	69.7	37.3	172	208
CALCIUM	6220	2260	24200	1200	25500	26700
CADMIUM	ND	ND	ND	ND	0.757	1.1
COBALT	ND	ND	ND	5.79	8.2	6.65
CHROMIUM	8.67	5.99	11.4	10.7	37.2	27.7
COPPER	25.9	15.8	22.9	11	91	425
IRON	37300	19600	13800	14900	28300	28300
MERCURY	1.93	0.226	ND	ND	0.188	0.269
POTASSIUM	735	664	613	472	801	746
MAGNESIUM	298	508	4370	1340	4180	4160
MANGANESE	62.2	30.4	615	306	813	751
SODIUM	384	221	245	ND	157	155
NICKEL	ND	3.84	5.57	9.42	26	19.5
LEAD	57.1	9.63	13.9	7.72	90.4	56.8
SELENIUM	1.58	ND	ND	ND	ND	ND
VANADIUM	12.1	6.79	9.86	11.8	15.4	13.9
ZINC	29.3	17.1	43.8	41.9	203	220

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CLP = Contract Lab Program; CRL = Central Regional Laboratory; CRDL = Contract Required Detection Limit;

CRQL = Contract Required Quantification Limit; GW = ground water; J = estimated value; MS = Matrix Spike; MSD = Matrix Spike Duplicate;

D = Metals--Matrix Spike Duplicate; D or DL = diluted; E = estimated - exceeds GC's upper calibration limit; G = Elevated reporting level;

M = Analyte is confirmed to be qualitatively present in the sample, extract or digest; and is at or above the MDL, but below CRL.

N/A = Not Applicable; ND= Not Detected; NR = Not Reported; NSF = Not Sampled For; P = lower of two GC columns reported;

R = Rejected -- data are unusable (analyte may or may not be present); RE = Re-analyzed by lab;

S = Metals--Matrix Spike Duplicate; SE = sediment sample; SO = soil sample; TCLP = Toxicity Characteristic Leaching Procedure

TICs = Tentatively Identified Compounds; U and UJ = analyte analyzed for, but not detected above the reported quantification limit;

ug/L = PPB = ug/kg = ng/gm; mg/L = PPM = mg/kg = ug/mL = ug/gm = ng/mg; and, X = GC could not distinguish peaks.

Table 3:
Analytical Results --
Geoprobe and Surface Soils --
Total Metals

Ohio EPA Sample ID # :	MS-SO-06D	MS-SO-A-1	MS-SO-A-2	MS-SO-B-1	MS-SO-C-1	-----
Ohio EPA Sampling Location :	GP-6	Pile A (W. Half)	Pile A (E. Half)	Pile B	Pile C	RAS -- CRDL
Matrix :	Soil	Soil	Soil	Soil	Soil	Soil
Units :	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Date & Time Sampled :	07/26/01, 13:00	07/25/01, 15:15	07/25/01, 16:00	07/26/01, 08:00	07/26/01, 10:00	-----
Sample Depth (feet) :	4-5.8' -- Deep	0-1' -- Shallow	0-1' -- Shallow	0-0.5' -- Shallow	0-0.5' -- Shallow	-----
QA / QC Information :	-----	-----	-----	-----	-----	RAS -- CRDL
ANALYTE	Result	Result	Result	Result	Result	Result
ALUMINUM	2560	7020	7960	7980	7810	40
ARSENIC	120	35.7	87.9	22	66.2	2
BARIUM	33.9	189	349	331	131	40
CALCIUM	386	39300	32300	32400	49600	1000
CADMIUM	ND	0.551	1.94	ND	1.13	1
COBALT	ND	11.9	6.72	4.72	3.16	10
CHROMIUM	8.53	40.8	54.2	33.4	24.6	2
COPPER	9.41	96.2	11000	6940	662	5
IRON	39600	26100	30900	32200	22100	20
MERCURY	ND	0.657	0.87	0.273	0.397	0.1
POTASSIUM	417	694	1020	780	636	1000
MAGNESIUM	420	5270	5280	5160	8640	1000
MANGANESE	28.6	1700	825	619	973	3
SODIUM	283	282	224	1140	302	1000
NICKEL	ND	24.4	33.8	23.7	16.7	8
LEAD	8.92	416	694	77.8	208	0.6
SELENIUM	1.09	ND	3.51	0.819	1.74	1
THALLIUM	ND	0.664	1.5	ND	0.749	2
VANADIUM	12.5	13.6	15.1	17.5	14.4	10
ZINC	17.6	437	953	240	584	4

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CRQL = Contract Required Quantification Limit; GW = ground water; J = estimated value; MS = Matrix Spike; MSD = Matrix Spike Duplicate;

D = Metals--Matrix Spike Duplicate; D or DL = diluted; E = estimated - exceeds GC's upper calibration limit; G = Elevated reporting level;

M = Analyte is confirmed to be qualitatively present in the sample, extract or digest; and is at or above the MDL, but below CRL.

N/A = Not Applicable; ND= Not Detected; NR = Not Reported; NSF = Not Sampled For; P = lower of two GC columns reported;

R = Rejected -- data are unusable (analyte may or may not be present); RE = Re-analyzed by lab;

S = Metals--Matrix Spike Duplicate; SE = sediment sample; SO = soil sample; TCLP = Toxicity Characteristic Leaching Procedure

TICs = Tentatively Identified Compounds; U and UJ = analyte analyzed for, but not detected above the reported quantification limit;

ug/L = PPB = ug/kg = ng/gm; mg/L = PPM = mg/kg = ug/mL = ug/gm = ng/mg; and, X = GC could not distinguish peaks.

Table 4: Analytical Results -- Ground and Surface Waters --- All Parameters

Ohio EPA Sample ID # :	P-1	MS-GP-01W	MS-GP-02W	MS-GP-03W	-----	TRIP BLANK	-----
Ohio EPA Sampling Location :	GP-1	GP-1	GP-2	GP-3	BASEMENT	-----	RAS -- CRQL
Matrix :	Ground Water	Ground Water	Ground Water	Ground Water	SURFACE WATER	Ground Water	Ground Water
Units :	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Date & Time Sampled :	07/25/01, 14:35	07/25/01, 14:35	07/25/01, 16:30	07/26/01, 10:30	07/26/01, 14:30	07/18/01, 12:00	RAS CRQL
QA / QC Information :	-----	Dup. of P-1	-----	-----	-----	TRIP BLANK	-----
PCB Compound	Result	Result	Result	Result	Result	Result	Result
Aroclor-1260	3.82	ND	ND	ND	NSF	NSF	1

Volatile Compound	Result	Result	Result	Result		Result	Result
Carbon Disulfide	ND	1.3	ND	1	NSF	1.1	10

ANALYTE	Result	Result	Result	Result		Result	Result
SILVER	ND	ND	ND	28	ND	NSF	10
ALUMINUM	688	2300	667	8650	ND	NSF	200
ARSENIC	31.4	33	18.6	5.2	ND	NSF	10
BARIUM	ND	55.1	ND	ND	ND	NSF	200
BERYLLIUM	ND	ND	ND	2.92	ND	NSF	5
CALCIUM	29.6	30.4	190	257	112	NSF	5000
COBALT	ND	ND	ND	41.1	ND	NSF	50
COPPER	ND	ND	ND	45.7	ND	NSF	25
IRON	14900	18100	7220	12700	ND	NSF	100
MERCURY	ND	ND	0.234	ND	ND	NSF	0.2
POTASSIUM	2.97	3.31	4.15	3.94	13.4	NSF	5000
MAGNESIUM	4.79	5.28	23.5	23.3	24	NSF	5000
MANGANESE	1220	1310	3640	1970	27.8	NSF	15
SODIUM	201	208	9.64	35	133	NSF	5000
NICKEL	ND	ND	ND	89.3	ND	NSF	40
LEAD	7.17	10.6	11	10.4	ND	NSF	3
ZINC	ND	ND	ND	603	ND	NSF	20

Chemical Oxygen Demand	NSF	NSF	NSF	NSF	ND	NSF	N/A
------------------------	-----	-----	-----	-----	----	-----	-----

STANDARD ABBREVIATIONS: B = Analyte in associated blank and in sample (method blank contamination) or estimate value;
CLP = Contract Lab Program; CRL = Central Regional Laboratory; CRDL = Contract Required Detection Limit;
CRQL = Contract Required Quantification Limit; GW = ground water; J = estimated value; N/A = Not Applicable; ND= Not Detected;
D = Metals--Matrix Spike Duplicate; D or DL = diluted; E = estimated - exceeds GC's upper calibration limit; G = Elevated reporting level;
M = Analyte is confirmed to be qualitatively present in the sample, extract or digest; and is at or above the MDL, but below CRL.
NSF = Not Sampled For; MS = Matrix Spike; MSD = Matrix Spike Duplicate; P = lower of two GC columns reported;
S = Metals--Matrix Spike Duplicate; SE = sediment sample; SO = soil sample; TCLP = Toxicity Characteristic Leaching Procedure
R = Rejected -- data are unusable (analyte may or may not be present); RE = Re-analyzed by lab;
TICs = Tentatively Identified Compounds; ug/L = PPB = ug/kg = ng/mg; mg/L = PPM = mg/kg = ug/mL = ug/gm = ng/mg;
U and UJ = analyte analyzed for, but not detected above the reported quantification limit; and, X = GC could not distinguish peaks.
VS = Volatile samples have analyte concentrations reported at or above the CRQL and more than or equal to the method blank concentration. The associated method blank concentration is more than or equal to the concentration criteria. Hits are qualified VS.

Table 5:
Soil Sampling Results -- XRF Metals

SAMPLE ID #	MS-01	MS-02	MS-03	MS-04	MS-05	MS-06	MS-07	MS-08	MS-9	MS-10	MS-10	MS-11	MS-12	MS-13	MS-14	MS-15
QA / QC Info	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	Dup.	-----	-----	-----	-----	-----
Sample Type	XRF	XRF	XRF	XRF	XRF	XRF	XRF	XRF	XRF	XRF	XRF	XRF	XRF	XRF	XRF	XRF
XRF ANALYTE	RESULTS ARE IN PARTS PER MILLION (PPM)															
potassium (K)	14530	10410	14310	11020	9780	13400	12510	7040	12140	10510	10990	15050	13550	13910	18590	15270
calcium (Ca)	30290	58660	26680	64330	59380	47210	40040	119760	53710	56210	55830	32370	54440	48750	23490	40590
titanium (Ti)	3650	3270	3020	2990	2770	3570	3630	1780	3090	3060	2960	4650	3620	3750	3730	3660
chromium (Cr)	430	340	-----	-----	-----	-----	310	-----	180	150	140	-----	-----	160	-----	-----
manganese (Mn)	1310	1170	860	1150	1130	1450	1530	654	1310	1900	1280	1060	1250	1360	1090	1100
iron (Fe)	37190	52160	42300	63440	53640	48610	44760	23170	56310	47670	49170	63890	48300	60720	50200	63780
cobalt (Co)	310	380	350	560	360	440	350	207	510	600	500	800	580	490	140	590
nickel (Ni)	64	79	41	122	129	-----	71	50	118	89	120	179	107	108	183	131
copper (Cu)	732	154	74	926	894	968	185	215	1316	476	495	17490*	308	2015	170	450
zinc (Zn)	477	590	540	887	820	496	429	334	1033	446	458	3486	469	1060	313	1205
arsenic (As)	102 / 10.2	74 / 15.9	98.3 / 9.8	145 / 14	287*	81 / 11.3	83 / 10.9	29.4	126 / 13.6	90 / 10.9	88 / 11.1	287 / 26.5	86	131 / 14.5	89	150 / 14.7
selenium (Se)	-----	-----	-----	-----	-----	8.4	-----	7.4	-----	-----	-----	11.5	-----	-----	-----	-----
strontium (Sr)	206.7	496.2	24.5	399	362.9	281.5	278.1	345.9	322.8	334	325.9	400.6	325.6	321.2	182.2	268.8
zirconium (Zr)	302.3	189.3	287.5	270	228.5	248.6	297.5	179.3	245.4	284	291	279.1	390.8	245.8	296.7	313.1
molybdenum (Mo)	2.7	-----	1.9	-----	6	5.2	7.8	6.2	-----	10.4	13.8	6.6	3.3	9.7	11.9	5.7
mercury (Hg)	16	20	-----	-----	-----	21	-----	-----	27	35	31	-----	21	17	26	-----
lead (Pb)	172	723*	127	368	292	241	230	147	393	199	228	1860 *	245	461	178	467
rubidium (Rb)	69	70.4	-----	-----	-----	-----	-----	50.8	-----	53.1	56.6	90.8	73.4	68.5	107.8	87.5
cadmium (Cd)	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
tin (Sn)	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
antimony (Sb)	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
barium (Ba)	557	-----	490	1061	-----	785	523	454	1038	675	646	2097	620	916	610	787
silver (Ag)	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
uranium (U)	21.3	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
thorium (Th)	19.2	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

* = Asterick indicates high level of confidence in XRF sample results; 10X lab blank.

NOTE: Data generated via XRF screening analysis should be regarded as qualitative and/or semi-quantative.

The data is usable for the purposes of site screening and should provide the user quality data points.

Confirmatory samples, however, should be collected and sent to a fixed-based laboratory for further analysis.

The recommended number of samples to be sent for confirmatory analysis should be

a minimum of 20% of the total number of samples collected for the particular project.

NOTES: B = estimated value; J = estimated value; and, U and UJ = analyte was not detected above the reported quantification limit.

102 / 10.2 = First number (102) is the result / Second number (10.2) is the standard deviation

MS-01 = MS - Mahoningside site; 01 -- consecutive sample ID# for analysis by X-Ray Fluorescence (XRF)

mg/kg = PPM; ug/L = PPB = ug/kg = ng/gm; mg/L = PPM = mg/kg = ug/mL = ug/gm = ng/mg.

Table 5:
Soil Sampling Results -- XRF Metals

SAMPLE ID #	MS-15B	MS-16	MS-17	MS-18	MS-19	MS-20	MS-21	MS-22	MS-23	MS-24	MS-25	MS-26	MS-26	MS-27	MS-28	MS-29
QA / QC Info	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	Dup.	-----	-----	-----
Sample Type	XRF	XRF	XRF	XRF	XRF	XRF	XRF	XRF	XRF	XRF	XRF	XRF	XRF	XRF	XRF	XRF
XRF ANALYTE	RESULTS ARE IN PARTS PER MILLION (PPM)															
potassium (K)	13610	19130	16870	13710	15930	11210	20770	7530	12610	12590	12960	11670	12160	18650	13570	16620
calcium (Ca)	52350	35250	49180	44260	34460	60820	27260	19950	41500	34120	46420	55270	54210	24450	23800	28420
titanium (Ti)	3740	4380	2410	3600	3690	3940	3380	2700	3530	2960	3580	3100	3040	4040	3590	3860
chromium (Cr)	180	-----	200	-----	400	320	-----	-----	-----	260	220	180	-----	330	240	280
manganese (Mn)	1730	1270	1990	1490	1000	1280	1210	1250	1220	1070	1030	1190	1180	1010	1630	1640
iron (Fe)	61370	43680	43980	43830	39150	46510	50130	104120	39150	42360	41390	54890	55190	53070	60360	54700
cobalt (Co)	850	460	650	680	380	510	480	430	400	390	540	530	480	530	530	400
nickel (Ni)	107	72	140	145	108	135	87	143	98	38	46	73	80	131	126	191
copper (Cu)	300	207	534	916	455	978	361	148	550	250	393	974	1030*	575	368	342
zinc (Zn)	1163	276	339	583	317	503	457	325	478	315	395	1011	1068	514	733	570
arsenic (As)	206 / 13.5*	67	59	158*	82	89	68	162 / 13.8	67	66.4	62	159/14.1	148/13.8	84	95	51
selenium (Se)	-----	-----	-----	-----	-----	7.6	-----	16.9	-----	8	-----	-----	-----	-----	-----	-----
strontium (Sr)	361.3	232.5	264.3	256	233.3	661.3	214.6	252.7	273	236	267	340	325	199	208	192
zirconium (Zr)	291.2	324.5	269.5	445	389.5	325.2	234.7	232.3	287	345	389	341	334	246	264	265
molybdenum (Mo)	5.5	2.6	-----	5.1	6.2	7.3	8.4	4	3.1	6.9	2.7	-----	-----	8	11.2	17.3
mercury (Hg)	18	-----	30	26 / 13.9	-----	-----	-----	-----	-----	-----	-----	26	-----	-----	-----	-----
lead (Pb)	260	227	188	255	146	247	155	173	244	148	202	402 *	400*	177	224	220
rubidium (Rb)	-----	93.5	66.7	66.3	78.4	58.8	126	63	70	77	65	66.5	67.5	123.7	93	129
cadmium (Cd)	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
tin (Sn)	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
antimony (Sb)	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
barium (Ba)	629	643	666	606	458	1460	758	442	511	517	521	537	554	726	652	755
silver (Ag)	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
uranium (U)	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
thorium (Th)	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

* = Asterick indicates high level of confidence in XRF sample results; 10X lab blank.

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NOTES: B = estimated value; J = estimated value; and, U and UJ = analyte was not detected above the reported quantification limit.

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MS-01 = MS -- Mahoningside site; 01 -- consecutive sample ID# for analysis by X-Ray Fluorescence (XRF)

mg/kg = PPM; ug/L = PPB = ug/kg = ng/gm; mg/L = PPM = mg/kg = ug/mL = ug/gm = ng/mg.

Table 5:
Soil Sampling Results -- XRF Metals

Sample ID #	MS-30	MS-31	MS-32	MS-33	MS-34	MS-35	MS-36	MS-36	MS-37	MS-38	MS-39	MS-40	MS-41	MS-42	MS-42	CRDL
QA / QC Info	-----	-----	-----	-----	-----	-----	-----	Dup.	-----	-----	-----	-----	-----	-----	Dup.	CRDL
Sample Type	XRF	XRF	XRF	XRF	XRF	XRF	XRF	XRF	XRF	XRF	XRF	XRF	XRF	XRF	XRF	CRDL
XRF ANALYTE	RESULTS ARE IN PARTS PER MILLION (PPM)															mg/kg
potassium (K)	12650	15810	5080	12630	15130	15280	9280	10028	9150	11360	8850	8660	19160	13200	13030	-----
calcium (Ca)	64070	31910	93350	42390	43710	49850	47210	47240	62410	12930	30670	20920	30250	15870	15080	1000
titanium (Ti)	3490	3990	5410	2530	3700	3680	2650	2860	3020	3610	3340	3050	4170	3010	2984	-----
chromium (Cr)	190	230	-----	360	370	-----	-----	-----	250	310	420	250	-----	190	260	2
manganese (Mn)	1620	1910	530	1270	1280	1060	1730	1680	1990	880	2230	1800	1240	890	989	3
iron (Fe)	66090	63450	41860	50280	54840	44590	88870	89800	43350	85220	91570	106160	44930	74440	74700	20
cobalt (Co)	460	870	440	-----	430	360	660	610	330	1050	830	1210	510	440	560	10
nickel (Ni)	143	227	112	133	125	78	64	74	86	-----	128	118	47	46	-----	8
copper (Cu)	928	339	203	1019*	813	802	3725*	3624	668	178	203	336	463	121	122	5
zinc (Zn)	964	595	178	716	693	835	2688	2800	468	590	672	1428	293	311	342	4
arsenic (As)	225 / 15.4*	95	73	119	101	149	203 / 20.0	222	42	136	529*/20.1	137	45	162	156	2
selenium (Se)	-----	7.4	-----	-----	-----	-----	-----	-----	-----	-----	24.3	-----	-----	-----	-----	1
strontium (Sr)	509	231	1906	295	265	397	329	332	306	288	368	246	240.6	183	186	-----
zirconium (Zr)	221	248	304	265	252	246	310	313	507	217	183	171	313	254	250	-----
molybdenum (Mo)	4.1	27	5.4	8.5	4.8	8.3	6	5.7	6.2	-----	6.6	-----	3.5	-----	-----	-----
mercury (Hg)	-----	28	-----	-----	35	15	-----	-----	16	-----	-----	-----	20	22	18	0.1
lead (Pb)	401*	249	49	276	308	331	886*	910	249	243	449*/19.2	779*/28.3	157	122	126	0.6
rubidium (Rb)	68	91	26	71	85.1	113	59	47	38	88	70	51.7	112	61.9	70	-----
cadmium (Cd)	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	1
tin (Sn)	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
antimony (Sb)	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	12
barium (Ba)	1516	632	4198	625	735	900	747	745	487	516	711	998	694	445	433	40
silver (Ag)	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	2
uranium (U)	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
thorium (Th)	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

* = Asterisk indicates high level of confidence in XRF sample results; 10X lab blank.

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MS-01 = MS -- Mahoningside site; 01 -- consecutive sample ID# for analysis by X-Ray Fluorescence (XRF)

mg/kg = PPM; ug/L = PPB = ug/kg = ng/gm; mg/L = PPM = mg/kg = ug/mL = ug/gm = ng/mg.

June 26, 2002

Mahoningside Targeted Brownfield Assessment Report

Attachment A:
Ohio EPA Boring Logs
(three total pages)

LIST OF ATTACHMENTS

- Attachment A** **Mahoningside T.B.A. --
Ohio EPA Boring Logs (3 pages)**
- Attachment B** **Complete Analytical Results --
Geoprobe & Surface Soils (16 total pages)**
- Attachment C** **Complete Analytical Results --
Ground & Surface Waters (6 total pages)**
- Attachment D** **Photographic Log (5 pages)**

Attachment A: Mahoningside T.B.A. -- Ohio EPA Boring Logs

GP-01

<u>CORE</u>	<u>FEET</u>	<u>DESCRIPTION</u>	<u>PID READING</u>
0-4	0-2	COARSE SLAG FILL/SAND/CLAY	(1.5 FT / 50 ppm)
	2-3	COARSE SLAG FILL/CLAY	(0 ppm)
	3-4	COARSE SLAG FILL/CLAY/SAND	(0 ppm)
4-8	0-2	NO CORE	-----
	2-4	BLACK COARSE FILL	(0 ppm)
8-12	0-2	NO CORE	-----
	2-4	BLACK COARSE FILL	(0 ppm)
12-16	0-2	NO CORE	-----
	2-3	BLACK COARSE FILL	(0 ppm)
	3-4 2"	BRICK/10" WET CLAY AND FILL	(0 ppm)
16-20	0-1	WET BLACK FILL	(2.0 ft 50 ppm)
	1-2	WET GRAVEL AND CLAY	(0 ppm)
	2-4	WET GRAY CLAY W/ SHALE FRAGMENTS	(0 ppm)

GP-02

<u>CORE</u>	<u>FEET</u>	<u>DESCRIPTION</u>	<u>PID READING</u>
0-4	0-1	COARSE BLACK FILL	(0 ppm)
	1-2	BRICK	(0 ppm)
	2-4	COARSE BLACK FILL	(0 ppm)
4-8	0-2	NO CORE	-----
	2-4	COARSE BLACK FILL	(0 ppm)
8-12	0-1	NO CORE	-----
	1-3	BROWN AND BLACK FILL	(0 ppm)
	3-3.5	SLAG	(0 ppm)
	3.5-4 2"	WHITE SAND/ BROWN CLAY	(0 ppm)
12-16	0-1	BLACK FILL	(0 ppm)
	1-2	MOIST BROWN CLAY	(0 ppm)
	2-4	WET TAN CLAY (SILTY)	(0 ppm)
16-20	0-2	NO CORE	-----
	2-3 4"	BLACK FILL/ 8" BROWN MOTTLED GREY CLAY	(0 ppm)
	3-4	GREY SILTY SAND (WET)	(0 ppm)

**Attachment A: Mahoningside T.B.A. --
Ohio EPA Boring Logs
(continued)**

GP-03

<u>CORE</u>	<u>FEET</u>	<u>DESCRIPTION</u>	<u>PID READING</u>
0-4	0-6"	NO CORE	-----
	6"-1	COARSE FILL	(0 ppm)
	1-4	COARSE BLACK FILL	(0 ppm)
4-8	0-1	NO CORE	-----
	1-2	COARSE BLACK FILL/ YELLOW FILL	(0 ppm)
	2-4	COARSE BLACK FILL/ CLAY	(0 ppm)
8-12	0-1	COARSE BLACK FILL/ CLAY	(0 ppm)
	1-2	BROWN MOIST CLAY	(0 ppm)
	2-4	WET TAN CLAY W/ GREY MOTTLING	(0 ppm)
12-16	0-4	TAN SILTY SAND	(0 ppm)

GP-04

<u>CORE</u>	<u>FEET</u>	<u>DESCRIPTION</u>	<u>PID READING</u>
0-4	0-6"	NO CORE	-----
	6"-1.5	COARSE BLACK FILL	(0 ppm)
	1.5-2	COARSE YELLOW FILL	(0 ppm)
	2-4	COARSE BLACK FILL	(0 ppm)
4-8	0-2	COARSE BLACK FILL	(0 ppm)
	2-2.5	YELLOW FILL/CLAY	(0 ppm)
	2.5	SILTSTONE FRAGMENT	(0 ppm)
	2.5-4	TAN CLAY MOTTLED YELLOW	(0 ppm)
8-12	0-2	NO CORE	-----
	2-2.5	COARSE BLACK FILL	(0 ppm)
	2.5-4	TAN CLAY MOTTLED YELLOW W/ SILTSTONE FRAGMENTS (MOIST)	(0 ppm)

**Attachment A: Mahoningside T.B.A. --
Ohio EPA Boring Logs
(continued)**

GP-05

<u>CORE</u>	<u>FEET</u>	<u>DESCRIPTION</u>	<u>PID READING</u>
0-4	0-0.5	NO CORE	-----
	0.5-2	FILL/CLAY	(0 ppm)
	2-3	COARSE BROWN FILL	(0 ppm)
	3-4	COARSE BLACK FILL	(0 ppm)
4-8	0-2	NO CORE	-----
	2-4	COARSE BLACK FILL	(0 ppm)
8-12	0-3	NO CORE	-----
	3-3.33	COARSE BLACK FILL	(0 ppm)
	3.33-4	BRICK/ DARK BROWN FILL	(0 ppm)
12-16	0-1	COARSE BLACK FILL	(0 ppm)
	1-2	DARK BROWN FILL/CLAY	(0 ppm)
	2-4	DARK BROWN CLAY TO TAN CLAY (MOIST)	(0 ppm)

GP-06

<u>CORE</u>	<u>FEET</u>	<u>DESCRIPTION</u>	<u>PID READING</u>
0-4	0-1.5	NO CORE	-----
	1.5-4	COARSE BLACK FILL	(0 ppm)
4-8	0-0.5	COARSE BLACK FILL	(0 ppm)
	0.5-4	ORANGE CLAY MOTTLED TAN (MOIST)	(0 ppm)

Attachment B:

**Complete Analytical Results --
Geoprobe & Surface Soils**

(16 total pages)

Attachment B: Complete Analytical Results -- Geoprobe and Surface Soils -- VOCs

Ohio EPA Sample ID # :	MS-GP-01S	MS-GP-01D	MS-GP-02S	MS-GP-02D	MS-GP-03S	MS-GP-03D
Ohio EPA Sampling Location :	GP-1	GP-1	GP-2	GP-2	GP-3	GP-3
Matrix :	Soil	Soil	Soil	Soil	Soil	Soil
Units :	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Date & Time Sampled :	07/25/01, 10:50	07/25/01, 11:00	07/25/01, 12:45	07/25/01, 12:50	07/26/01, 09:00	07/26/01, 09:00
Sample Depth (feet) :	0.5-4' -- Shallow	4-20' -- Deep	1-4' -- Shallow	7.5-22.5' -- Deep	0-4' -- Shallow	5-13' -- Deep
QA / QC Information :	-----	-----	-----	-----	-----	-----
Volatile Compound	Result	Result	Result	Result	Result	Result
Dichlorodifluoromethane	ND	ND	ND	ND	NSF	ND
Chloromethane	ND	ND	ND	ND	NSF	ND
Vinyl Chloride	ND	ND	ND	ND	NSF	ND
Bromomethane	ND	ND	ND	ND	NSF	ND
Chloroethane	ND	ND	ND	ND	NSF	ND
Trichlorofluoromethane	ND	ND	ND	ND	NSF	ND
1,1-Dichloroethene	ND	ND	ND	ND	NSF	ND
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ND	ND	ND	NSF	ND
Acetone	ND	ND	ND	ND	NSF	ND
Carbon Disulfide	ND	ND	ND	ND	NSF	ND
Methyl Acetate	ND	ND	ND	ND	NSF	ND
Methylene Chloride	ND	ND	ND	ND	NSF	ND
trans-1,2-Dichloroethene	ND	ND	ND	ND	NSF	ND
Methyl tert-Butyl Ether	ND	ND	ND	ND	NSF	ND
1,1-Dichloroethane	ND	ND	ND	ND	NSF	ND
cis-1,2-Dichloroethene	ND	ND	ND	ND	NSF	ND
2-Butanone	ND	ND	ND	ND	NSF	ND
Chloroform	ND	ND	ND	ND	NSF	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	NSF	ND
Cyclohexane	ND	ND	ND	ND	NSF	ND
Carbon Tetrachloride	ND	ND	ND	ND	NSF	ND
Benzene	ND	ND	ND	ND	NSF	ND
1,2-Dichloroethane	ND	ND	ND	ND	NSF	ND
Trichloroethene	ND	ND	ND	ND	NSF	ND
Methylcyclohexane	ND	ND	ND	ND	NSF	ND
1,2-Dichloropropane	ND	ND	ND	ND	NSF	ND
Bromodichloromethane	ND	ND	ND	ND	NSF	ND
cis-1,3-Dichloropropene	ND	ND	ND	ND	NSF	ND
4-Methyl-2-pentanone	ND	ND	ND	ND	NSF	ND
Toluene	ND	ND	ND	ND	NSF	ND
trans-1,3-Dichloropropene	ND	ND	ND	ND	NSF	ND
1,1,2-Trichloroethane	ND	ND	ND	ND	NSF	ND
Tetrachloroethene	ND	ND	ND	ND	NSF	ND

Attachment B: Complete Analytical Results -- Geoprobe and Surface Soils -- VOCs

Ohio EPA Sample ID # :	MS-GP-01S	MS-GP-01D	MS-GP-02S	MS-GP-02D	MS-GP-03S	MS-GP-03D
Ohio EPA Sampling Location :	GP-1	GP-1	GP-2	GP-2	GP-3	GP-3
Matrix :	Soil	Soil	Soil	Soil	Soil	Soil
Units :	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Date & Time Sampled :	07/25/01, 10:50	07/25/01, 11:00	07/25/01, 12:45	07/25/01, 12:50	07/26/01, 09:00	07/26/01, 09:00
Sample Depth (feet) :	0.5-4' -- Shallow	4-20' -- Deep	1-4' -- Shallow	7.5-22.5' -- Deep	0-4' -- Shallow	5-13' -- Deep
QA / QC Information :	-----	-----	-----	-----	-----	-----
<i>Volatile Compound</i>	<i>Result</i>	<i>Result</i>	<i>Result</i>	<i>Result</i>	<i>Result</i>	<i>Result</i>
2-Hexanone	ND	ND	ND	ND	NSF	ND
Dibromochloromethane	ND	ND	ND	ND	NSF	ND
1,2-Dibromoethane	ND	ND	ND	ND	NSF	ND
Chlorobenzene	ND	ND	ND	ND	NSF	ND
Ethylbenzene	ND	ND	ND	ND	NSF	ND
Xylenes (total)	ND	ND	ND	ND	NSF	ND
Styrene	ND	ND	ND	ND	NSF	ND
Bromoform	ND	ND	ND	ND	NSF	ND
Isopropylbenzene	ND	ND	ND	ND	NSF	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	NSF	ND
1,3-Dichlorobenzene	ND	ND	ND	ND	NSF	ND
1,4-Dichlorobenzene	ND	ND	ND	ND	NSF	ND
1,2-Dichlorobenzene	ND	ND	ND	ND	NSF	ND
1,2-Dibromo-3-chloropropane	ND	ND	ND	ND	NSF	ND
1,2,4-Trichlorobenzene	ND	ND	ND	ND	NSF	ND

STANDARD ABBREVIATIONS: B = Analyte in associated blank and in sample (method blank contamination) or estimate value;
CLP = Contract Lab Program; CRL = Central Regional Laboratory; CRDL = Contract Required Detection Limit;
CRQL = Contract Required Quantification Limit; GW = ground water; J = estimated value; N/A = Not Applicable; ND = Not Detected;
D = Metals--Matrix Spike Duplicate; D or DL = diluted; E = estimated - exceeds GC's upper calibration limit; G = Elevated reporting level;
M = Analyte is confirmed to be qualitatively present in the sample, extract or digest; and is at or above the MDL, but below CRL.
NSF = Not Sampled For; MS = Matrix Spike; MSD = Matrix Spike Duplicate; P = lower of two GC columns reported;
S = Metals--Matrix Spike Duplicate; SE = sediment sample; SO = soil sample; TCLP = Toxicity Characteristic Leaching Procedure
R = Rejected -- data are unusable (analyte may or may not be present); RE = Re-analyzed by lab;
TICs = Tentatively Identified Compounds; ug/L = PPB = ug/kg = ng/gm; mg/L = PPM = mg/kg = ug/mL = ug/gm = ng/mg;
U and UJ = analyte analyzed for, but not detected above the reported quantification limit; and, X = GC could not distinguish peaks.
VS = Volatile samples have analyte concentrations reported at or above the CRQL and more than or equal to the method blank concentration. The associated method blank concentration is more than or equal to the concentration criteria. Hits are qualified VS.

Attachment B: Complete Analytical Results -- Geoprobe and Surface Soils -- VOCs

Ohio EPA Sample ID # :	MS-SO-04S	MS-SO-04D	MS-SO-05S	MS-SO-05D	-----	-----
Ohio EPA Sampling Location :	GP-4	GP-4	GP-5	GP-5	Trough	East Side
Matrix :	Soil	Soil	Soil	Soil	Soil	Soil
Units :	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Date & Time Sampled :	07/26/01, 11:30	07/26/01, 11:45	07/26/01, 12:00	07/26/01, 12:30	07/26/01, 13:00	07/26/01, 13:30
Sample Depth (feet) :	0.5-3' -- Shallow	5-12' -- Deep	0.5-4' -- Shallow	13-14' -- Deep	0-4' -- Shallow	0-4' -- Shallow
QA / QC Information :	-----	-----	-----	-----	-----	Dup. of Trough
Volatile Compound	Result	Result	Result	Result	Result	Result
Dichlorodifluoromethane	ND	ND	ND	ND	ND	ND
Chloromethane	ND	ND	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND	ND	ND
Bromomethane	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ND	ND	ND	ND	ND
Acetone	ND	ND	ND	ND	ND	ND
Carbon Disulfide	ND	ND	ND	ND	ND	ND
Methyl Acetate	ND	ND	ND	ND	ND	ND
Methylene Chloride	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND
Methyl tert-Butyl Ether	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND
2-Butanone	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND
Cyclohexane	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ND	ND	ND	ND	ND	ND
Benzene	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND
Trichloroethene	ND	ND	ND	ND	ND	ND
Methylcyclohexane	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND
Bromodichloromethane	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	ND
4-Methyl-2-pentanone	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND	ND

Attachment B: Complete Analytical Results -- Geoprobe and Surface Soils -- VOCs

Ohio EPA Sample ID # :	MS-SO-04S	MS-SO-04D	MS-SO-05S	MS-SO-05D	-----	-----
Ohio EPA Sampling Location :	GP-4	GP-4	GP-5	GP-5	Trough	East Side
Matrix :	Soil	Soil	Soil	Soil	Soil	Soil
Units :	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Date & Time Sampled :	07/26/01, 11:30	07/26/01, 11:45	07/26/01, 12:00	07/26/01, 12:30	07/26/01, 13:00	07/26/01, 13:30
Sample Depth (feet) :	0.5-3' -- Shallow	5-12' -- Deep	0.5-4' -- Shallow	13-14' -- Deep	0-4' -- Shallow	0-4' -- Shallow
QA / QC Information :	-----	-----	-----	-----	-----	Dup. of Trough
Volatile Compound	Result	Result	Result	Result	Result	Result
2-Hexanone	ND	ND	ND	ND	ND	ND
Dibromochloromethane	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	ND	ND	ND
Xylenes (total)	ND	ND	ND	ND	ND	ND
Styrene	ND	ND	ND	ND	ND	ND
Bromoform	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	ND

STANDARD ABBREVIATIONS:

B = Analyte in associated blank and in sample (method blank contamination) or estimate value;

CLP = Contract Lab Program; CRL = Central Regional Laboratory; CRDL = Contract Required Detection Limit;

CRQL = Contract Required Quantification Limit; GW = ground water; J = estimated value; N/A = Not Applicable; ND= Not Detected;

D = Metals--Matrix Spike Duplicate; D or DL = diluted; E = estimated - exceeds GC's upper calibration limit; G = Elevated reporting level;

M = Analyte is confirmed to be qualitatively present in the sample, extract or digest; and is at or above the MDL, but below CRL.

NSF = Not Sampled For; MS = Matrix Spike; MSD = Matrix Spike Duplicate; P = lower of two GC columns reported;

S = Metals--Matrix Spike Duplicate; SE = sediment sample; SO = soil sample; TCLP = Toxicity Characteristic Leaching Procedure

R = Rejected -- data are unusable (analyte may or may not be present); RE = Re-analyzed by lab;

TICs = Tentatively Identified Compounds; ug/L = PPB = ug/kg = ng/gm; mg/L = PPM = mg/kg = ug/mL = ug/gm = ng/mg;

U and UJ = analyte analyzed for, but not detected above the reported quantification limit; and, X = GC could not distinguish peaks.

VS = Volatile samples have analyte concentrations reported at or above the CRQL and more than or equal to the method blank concentration. The associated method blank concentration is more than or equal to the concentration criteria. Hits are qualified VS.

Attachment B: Complete Analytical Results -- Geoprobe and Surface Soils -- VOCs

Ohio EPA Sample ID # :	MS-SO-06D	MS-SO-A-1	MS-SO-A-2	MS-SO-B-1	MS-SO-C-1	-----
Ohio EPA Sampling Location :	GP-6	Pile A (W. Half)	Pile A (E. Half)	Pile B	Pile C	RAS -- CRDL
Matrix :	Soil	Soil	Soil	Soil	Soil	Soil
Units :	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Date & Time Sampled :	07/26/01, 13:00	07/25/01, 15:15	07/25/01, 16:00	07/26/01, 08:00	07/26/01, 10:00	-----
Sample Depth (feet) :	4-5.8' -- Deep	0-1' -- Shallow	0-1' -- Shallow	0-0.5' -- Shallow	0-0.5' -- Shallow	-----
QA / QC Information :	-----	-----	-----	-----	-----	RAS -- CRDL
Volatile Compound	Result	Result	Result	Result	Result	Result
Dichlorodifluoromethane	ND	ND	ND	ND	ND	10
Chloromethane	ND	ND	ND	ND	ND	10
Vinyl Chloride	ND	ND	ND	ND	ND	10
Bromomethane	ND	ND	ND	ND	ND	10
Chloroethane	ND	ND	ND	ND	ND	10
Trichlorofluoromethane	ND	ND	ND	ND	ND	10
1,1-Dichloroethene	ND	ND	ND	ND	ND	10
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ND	ND	ND	ND	10
Acetone	ND	ND	ND	ND	ND	10
Carbon Disulfide	ND	ND	ND	ND	ND	10
Methyl Acetate	ND	ND	ND	ND	ND	10
Methylene Chloride	ND	ND	ND	ND	ND	10
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	10
Methyl tert-Butyl Ether	ND	ND	ND	ND	ND	10
1,1-Dichloroethane	ND	ND	ND	ND	ND	10
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	10
2-Butanone	ND	ND	ND	ND	ND	10
Chloroform	ND	ND	ND	ND	ND	10
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	10
Cyclohexane	ND	ND	ND	ND	ND	10
Carbon Tetrachloride	ND	ND	ND	ND	ND	10
Benzene	ND	ND	ND	ND	ND	10
1,2-Dichloroethane	ND	ND	ND	ND	ND	10
Trichloroethene	ND	ND	ND	ND	ND	10
Methylcyclohexane	ND	ND	ND	ND	ND	10
1,2-Dichloropropane	ND	ND	ND	ND	ND	10
Bromodichloromethane	ND	ND	ND	ND	ND	10
cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	10
4-Methyl-2-pentanone	ND	ND	ND	ND	ND	10
Toluene	ND	ND	ND	ND	ND	10
trans-1,3-Dichloropropene	ND	ND	ND	ND	ND	10
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	10
Tetrachloroethene	ND	ND	ND	ND	ND	10

Attachment B: Complete Analytical Results -- Geoprobe and Surface Soils -- VOCs

Ohio EPA Sample ID # :	MS-SO-06D	MS-SO-A-1	MS-SO-A-2	MS-SO-B-1	MS-SO-C-1	-----
Ohio EPA Sampling Location :	GP-6	Pile A (W. Half)	Pile A (E. Half)	Pile B	Pile C	RAS -- CRDL
Matrix :	Soil	Soil	Soil	Soil	Soil	Soil
Units :	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Date & Time Sampled :	07/26/01, 13:00	07/25/01, 15:15	07/25/01, 16:00	07/26/01, 08:00	07/26/01, 10:00	-----
Sample Depth (feet) :	4-5.8' -- Deep	0-1' -- Shallow	0-1' -- Shallow	0-0.5' -- Shallow	0-0.5' -- Shallow	-----
QA / QC Information :	-----	-----	-----	-----	-----	RAS -- CRDL
Volatile Compound	Result	Result	Result	Result	Result	Result
2-Hexanone	ND	ND	ND	ND	ND	10
Dibromochloromethane	ND	ND	ND	ND	ND	10
1,2-Dibromoethane	ND	ND	ND	ND	ND	10
Chlorobenzene	ND	ND	ND	ND	ND	10
Ethylbenzene	ND	ND	ND	ND	ND	10
Xylenes (total)	ND	ND	ND	ND	ND	10
Styrene	ND	ND	ND	ND	ND	10
Bromoform	ND	ND	ND	ND	ND	10
Isopropylbenzene	ND	ND	ND	ND	ND	10
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	10
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	10
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	10
1,2-Dichlorobenzene	ND	ND	ND	ND	ND	10
1,2-Dibromo-3-chloropropane	ND	ND	ND	ND	ND	10
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	2

STANDARD ABBREVIATIONS:

B = Analyte in associated blank and in sample (method blank contamination) or estimate value;

CLP = Contract Lab Program; CRL = Central Regional Laboratory; CRDL = Contract Required Detection Limit;

CRQL = Contract Required Quantification Limit; GW = ground water; J = estimated value; N/A = Not Applicable; ND= Not Detected;

D = Metals--Matrix Spike Duplicate; D or DL = diluted; E = estimated - exceeds GC's upper calibration limit; G = Elevated reporting level;

M = Analyte is confirmed to be qualitatively present in the sample, extract or digest; and is at or above the MDL, but below CRL.

NSF = Not Sampled For; MS = Matrix Spike; MSD = Matrix Spike Duplicate; P = lower of two GC columns reported;

S = Metals--Matrix Spike Duplicate; SE = sediment sample; SO = soil sample; TCLP = Toxicity Characteristic Leaching Procedure

R = Rejected -- data are unusable (analyte may or may not be present); RE = Re-analyzed by lab;

TICs = Tentatively Identified Compounds; ug/L = PPB = ug/kg = ng/gm; mg/L = PPM = mg/kg = ug/mL = ug/gm = ng/mg;

U and UJ = analyte analyzed for, but not detected above the reported quantification limit; and, X = GC could not distinguish peaks.

VS = Volatile samples have analyte concentrations reported at or above the CRQL and more than or equal to the method blank concentration. The associated method blank concentration is more than or equal to the concentration criteria. Hits are qualified VS.

Attachment B: Complete Analytical Results -- Geoprobe and Surface Soils -- SVOCs

Ohio EPA Sample ID # :	MS-GP-01S GP-1	MS-GP-01D GP-1	MS-GP-02S GP-2	MS-GP-02D GP-2	MS-GP-03S GP-3	MS-GP-03D GP-3
Ohio EPA Sampling Location :	Soil	Soil	Soil	Soil	Soil	Soil
Matrix :	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Units :	07/25/01, 10:50	07/25/01, 11:00	07/25/01, 12:45	07/25/01, 12:50	07/26/01, 09:00	07/26/01, 09:00
Date & Time Sampled :	0.5-4' -- Shallow	4-20' -- Deep	1-4' -- Shallow	7.5-22.5' -- Deep	0-4' -- Shallow	5-13' -- Deep
Sample Depth (feet) :	-----	-----	-----	-----	-----	-----
QA / QC Information :						
Semi-Volatile Compound	Result	Result	Result	Result	Result	Result
Benzaldehyde	ND	ND	ND	ND	ND	ND
Phenol	ND	ND	ND	ND	ND	ND
bis-(2-Chloroethyl) ether	ND	ND	ND	ND	ND	ND
2-Chlorophenol	ND	ND	ND	ND	ND	ND
2-Methylphenol	ND	ND	ND	ND	ND	ND
2,2'-oxybis(1-Chloropropane)	ND	ND	ND	ND	ND	ND
Acetophenone	ND	ND	ND	ND	ND	ND
4-Methylphenol	ND	ND	ND	ND	ND	ND
N-Nitroso-di-n-propylamine	ND	ND	ND	ND	ND	ND
Hexachloroethane	ND	ND	ND	ND	ND	ND
Nitrobenzene	ND	ND	ND	ND	ND	ND
Isophorone	ND	ND	ND	ND	ND	ND
2-Nitrophenol	ND	ND	ND	ND	ND	ND
2,4-Dimethylphenol	ND	ND	ND	ND	ND	ND
bis(2-Chloroethoxy)methane	ND	ND	ND	ND	ND	ND
2,4-Dichlorophenol	ND	ND	ND	ND	ND	ND
Naphthalene	ND	ND	1020	ND	1670	8330
4-Chloroaniline	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	ND	ND	ND	ND	ND	ND
Caprolactam	ND	ND	ND	ND	ND	ND
4-Chloro-3-methylphenol	ND	ND	ND	ND	ND	ND
2-Methylnaphthalene	ND	ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	ND	ND	ND	ND	ND	ND
2,4,6-Trichlorophenol	ND	ND	ND	ND	ND	ND
2,4,5-Trichlorophenol	ND	ND	ND	ND	ND	ND
1,1'-Biphenyl	ND	ND	ND	ND	ND	ND
2-Chloronaphthalene	ND	ND	ND	ND	ND	ND
2-Nitroaniline	ND	ND	ND	ND	ND	ND
Dimethylphthalate	ND	ND	ND	ND	ND	ND
2,6-Dinitrotoluene	ND	ND	ND	ND	ND	ND
Acenaphthylene	ND	ND	ND	ND	ND	ND
3-Nitroaniline	ND	ND	ND	ND	ND	ND
Acenaphthene	ND	ND	ND	ND	ND	2980

STANDARD ABBREVIATIONS:

B = Analyte in associated blank and in sample (method blank contamination) or estimate value;

CLP = Contract Lab Program; CRL = Central Regional Laboratory; CRDL = Contract Required Detection Limit;

CRQL = Contract Required Quantification Limit; GW = ground water; J = estimated value; N/A = Not Applicable; ND= Not Detected;

D = Metals--Matrix Spike Duplicate; D or DL = diluted; E = estimated - exceeds GC's upper calibration limit; G = Elevated reporting level;

M = Analyte is confirmed to be qualitatively present in the sample, extract or digest; and is at or above the MDL, but below CRL.

NSF = Not Sampled For; MS = Matrix Spike; MSD = Matrix Spike Duplicate; P = lower of two GC columns reported;

S = Metals--Matrix Spike Duplicate; SE = sediment sample; SO = soil sample; TCLP = Toxicity Characteristic Leaching Procedure

R = Rejected -- data are unusable (analyte may or may not be present); RE = Re-analyzed by lab;

TICs = Tentatively Identified Compounds; ug/L = PPB = ug/kg = ng/gm; mg/L = PPM = mg/kg = ug/mL = ug/gm = ng/mg;

U and UJ = analyte analyzed for, but not detected above the reported quantification limit; and, X = GC could not distinguish peaks.

VS = Volatile samples have analyte concentrations reported at or above the CRQL and more than or equal to the method blank concentration. The associated method blank concentration is more than or equal to the concentration criteria. Hits are qualified VS

Attach. ent B: Complete Analytical Results --
Geoprobe and Surface Soils --
SVOCs

Ohio EPA Sample ID # :	MS-GP-01S GP-1	MS-GP-01D GP-1	MS-GP-02S GP-2	MS-GP-02D GP-2	MS-GP-03S GP-3	MS-GP-03D GP-3
Ohio EPA Sampling Location :	Soil	Soil	Soil	Soil	Soil	Soil
Matrix :	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Units :	07/25/01, 10:50	07/25/01, 11:00	07/25/01, 12:45	07/25/01, 12:50	07/26/01, 09:00	07/26/01, 09:00
Date & Time Sampled :	0.5-4' -- Shallow	4-20' -- Deep	1-4' -- Shallow	7.5-22.5' -- Deep	0-4' -- Shallow	5-13' -- Deep
Sample Depth (feet) :	-----	-----	-----	-----	-----	-----
QA / QC Information :						
Semi-Volatile Compound	Result	Result	Result	Result	Result	Result
2,4-Dinitrophenol	ND	ND	ND	ND	ND	ND
4-Nitrophenol	ND	ND	ND	ND	ND	ND
Dibenzofuran	ND	ND	ND	ND	ND	ND
2,4-Dinitrotoluene	ND	ND	ND	ND	ND	ND
Diethylphthalate	ND	ND	ND	ND	ND	ND
Fluorene	ND	ND	ND	ND	ND	5090
4-Chlorophenyl-phenyl ether	ND	ND	ND	ND	ND	ND
4-Nitroaniline	ND	ND	ND	ND	ND	ND
4,6-Dinitro-2-methylphenol	ND	ND	ND	ND	ND	ND
N-Nitrosodiphenylamine	ND	ND	ND	ND	ND	ND
4-Bromophenyl-phenylether	ND	ND	ND	ND	ND	ND
Hexachlorobenzene	ND	ND	ND	ND	ND	ND
Atrazine	ND	ND	ND	ND	ND	ND
Pentachlorophenol	ND	ND	ND	ND	ND	ND
Phenanthrene	ND	1030	1100	ND	1040	27500
Anthracene	ND	ND	ND	ND	ND	7720
Carbazole	ND	ND	ND	ND	ND	ND
Di-n-butylphthalate	ND	ND	ND	ND	ND	ND
Fluoranthene	2210	2280	522	ND	ND	21300
Pyrene	2900	1850	494	ND	ND	15500
Butylbenzylphthalate	ND	ND	ND	ND	ND	ND
3,3'-Dichlorobenzidine	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	1650	ND	ND	ND	ND	6990
Chrysene	1510	2280	436	ND	ND	6570
bis(2-Ethylhexyl)phthalate	ND	ND	ND	ND	ND	ND
Di-n-octylphthalate	ND	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	2110	1430	524	ND	ND	8920
Benzo(k)fluoranthene	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene	1270	895	ND	ND	ND	5120
Indeno(1,2,3-cd)pyrene	486	ND	ND	ND	ND	2410
Dibenzo(a,h)anthracene	ND	ND	ND	ND	ND	ND
Benzo(g,h,i)perylene	479	ND	ND	ND	ND	2750

Miscellaneous Parameters	Result	Result	Result	Result	Result	Result
TRPH	240	ND	47	ND	400	170
% CHRYSOLITE ASBESTO	OBSERVED	ND	OBSERVED	ND	OBSERVED	OBSERVED
% AMOSITE ASBESTOS *	ND	ND	ND	ND	ND	N/A
% OTHER NON-ASBESTOS MATER	OBSERVED	OBSERVED	OBSERVED	OBSERVED	OBSERVED	OBSERVED
PERCENT SOLIDS	84 / 88	71 / 74	86 / 88	75 / 89	89	81 / 76

* = Due to the nature of the asbestos sample (dust, debris, soil or vacuum), percentages of the constituents could not be assigned

"OBSERVED" = Asbestos or Non-Asbestos materials were observed by the lab.

TRPH = Total Recoverable Petroleum Hydrocarbons (TRPH)

Attachment B: Complete Analytical Results -- Geoprobe and Surface Soils -- SVOCs

Ohio EPA Sample ID # :	MS-SO-04S	MS-SO-04D	MS-SO-05S	MS-SO-05D	-----	-----
Ohio EPA Sampling Location :	GP-4	GP-4	GP-5	GP-5	Trough	East Side
Matrix :	Soil	Soil	Soil	Soil	Soil	Soil
Units :	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Date & Time Sampled :	07/26/01, 11:30	07/26/01, 11:45	07/26/01, 12:00	07/26/01, 12:30	07/26/01, 13:00	07/26/01, 13:30
Sample Depth (feet) :	0.5-3' -- Shallow	5-12' -- Deep	0.5-4' -- Shallow	13-14' -- Deep	0-4' -- Shallow	0-4' -- Shallow
QA / QC Information :	-----	-----	-----	-----	-----	Dup. of Trough
Semi-Volatile Compound	Result	Result	Result	Result	Result	Result
Benzaldehyde	ND	ND	ND	ND	ND	ND
Phenol	ND	ND	ND	ND	ND	ND
bis-(2-Chloroethyl) ether	ND	ND	ND	ND	ND	ND
2-Chlorophenol	ND	ND	ND	ND	ND	ND
2-Methylphenol	ND	ND	ND	ND	ND	ND
2,2'-oxybis(1-Chloropropane)	ND	ND	ND	ND	ND	ND
Acetophenone	ND	ND	ND	ND	ND	ND
4-Methylphenol	ND	ND	ND	ND	ND	ND
N-Nitroso-di-n-propylamine	ND	ND	ND	ND	ND	ND
Hexachloroethane	ND	ND	ND	ND	ND	ND
Nitrobenzene	ND	ND	ND	ND	ND	ND
Isophorone	ND	ND	ND	ND	ND	ND
2-Nitrophenol	ND	ND	ND	ND	ND	ND
2,4-Dimethylphenol	ND	ND	ND	ND	ND	ND
bis(2-Chloroethoxy)methane	ND	ND	ND	ND	ND	ND
2,4-Dichlorophenol	ND	ND	ND	ND	ND	ND
Naphthalene	1730	ND	ND	ND	ND	ND
4-Chloroaniline	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	ND	ND	ND	ND	ND	ND
Caprolactam	ND	ND	ND	ND	ND	ND
4-Chloro-3-methylphenol	ND	ND	ND	ND	ND	ND
2-Methylnaphthalene	ND	ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	ND	ND	ND	ND	ND	ND
2,4,6-Trichlorophenol	ND	ND	ND	ND	ND	ND
2,4,5-Trichlorophenol	ND	ND	ND	ND	ND	ND
1,1'-Biphenyl	ND	ND	ND	ND	ND	ND
2-Chloronaphthalene	ND	ND	ND	ND	ND	ND
2-Nitroaniline	ND	ND	ND	ND	ND	ND
Dimethylphthalate	ND	ND	ND	ND	ND	ND
2,6-Dinitrotoluene	ND	ND	ND	ND	ND	ND
Acenaphthylene	ND	ND	ND	ND	ND	ND
3-Nitroaniline	ND	ND	ND	ND	ND	ND
Acenaphthene	ND	ND	ND	ND	ND	ND

STANDARD ABBREVIATIONS:

B = Analyte in associated blank and in sample (method blank contamination) or estimate value;

CLP = Contract Lab Program; CRL = Central Regional Laboratory; CRDL = Contract Required Detection Limit;

CRQL = Contract Required Quantification Limit; GW = ground water; J = estimated value; N/A = Not Applicable; ND= Not Detected;

D = Metals--Matrix Spike Duplicate; D or DL = diluted; E = estimated - exceeds GC's upper calibration limit; G = Elevated reporting level;

M = Analyte is confirmed to be qualitatively present in the sample, extract or digest; and is at or above the MDL, but below CRL.

NSF = Not Sampled For; MS = Matrix Spike; MSD = Matrix Spike Duplicate; P = lower of two GC columns reported;

S = Metals--Matrix Spike Duplicate; SE = sediment sample; SO = soil sample; TCLP = Toxicity Characteristic Leaching Procedure

R = Rejected -- data are unusable (analyte may or may not be present); RE = Re-analyzed by lab;

TICs = Tentatively Identified Compounds; ug/L = PPB = ug/kg = ng/gm; mg/L = PPM = mg/kg = ug/mL = ug/gm = ng/mg;

U and UJ = analyte analyzed for, but not detected above the reported quantification limit; and, X = GC could not distinguish peaks.

VS = Volatile samples have analyte concentrations reported at or above the CRQL and more than or equal to the method blank concentration. The associated method blank concentration is more than or equal to the concentration criteria. Hits are qualified VS.

Attachment B: Complete Analytical Results -- Geoprobe and Surface Soils -- SVOCs

Ohio EPA Sample ID # :	MS-SO-04S	MS-SO-04D	MS-SO-05S	MS-SO-05D	-----	-----
Ohio EPA Sampling Location :	GP-4	GP-4	GP-5	GP-5	Trough	East Side
Matrix :	Soil	Soil	Soil	Soil	Soil	Soil
Units :	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Date & Time Sampled :	07/26/01, 11:30	07/26/01, 11:45	07/26/01, 12:00	07/26/01, 12:30	07/26/01, 13:00	07/26/01, 13:30
Sample Depth (feet) :	0.5-3' -- Shallow	5-12' -- Deep	0.5-4' -- Shallow	13-14' -- Deep	0-4' -- Shallow	0-4' -- Shallow
QA / QC Information :	-----	-----	-----	-----	-----	Dup. of Trough
Semi-Volatile Compound	Result	Result	Result	Result	Result	Result
2,4-Dinitrophenol	ND	ND	ND	ND	ND	ND
4-Nitrophenol	ND	ND	ND	ND	ND	ND
Dibenzofuran	ND	ND	ND	ND	ND	ND
2,4-Dinitrotoluene	ND	ND	ND	ND	ND	ND
Diethylphthalate	ND	ND	ND	ND	ND	ND
Fluorene	ND	ND	ND	ND	ND	ND
4-Chlorophenyl-phenyl ether	ND	ND	ND	ND	ND	ND
4-Nitroaniline	ND	ND	ND	ND	ND	ND
4,6-Dinitro-2-methylphenol	ND	ND	ND	ND	ND	ND
N-Nitrosodiphenylamine	ND	ND	ND	ND	ND	ND
4-Bromophenyl-phenylether	ND	ND	ND	ND	ND	ND
Hexachlorobenzene	ND	ND	ND	ND	ND	ND
Atrazine	ND	ND	ND	ND	ND	ND
Pentachlorophenol	ND	ND	ND	ND	ND	ND
Phenanthrene	1480	566	789	ND	574	826
Anthracene	ND	ND	ND	ND	ND	ND
Carbazole	ND	ND	ND	ND	ND	ND
Di-n-butylphthalate	ND	ND	ND	ND	ND	ND
Fluoranthene	1130	639	1100	ND	1830	2160
Pyrene	964	528	801	ND	1780	2030
Butylbenzylphthalate	ND	ND	ND	ND	ND	ND
3,3'-Dichlorobenzidine	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	ND	ND	511	ND	1440	1250
Chrysene	946	ND	472	ND	1350	1150
bis(2-Ethylhexyl)phthalate	ND	ND	ND	ND	ND	ND
Di-n-octylphthalate	ND	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	1710	406	857	ND	2590	2270
Benzo(k)fluoranthene	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene	ND	ND	396	ND	1300	1210
Indeno(1,2,3-cd)pyrene	ND	ND	ND	ND	661	670
Dibenzo(a,h)anthracene	ND	ND	ND	ND	423	434
Benzo(g,h,i)perylene	ND	ND	ND	ND	655	678

Miscellaneous Parameters	Result	Result	Result	Result	Result	Result
TRPH	190	ND	2000	66	650	520
% CHRYSOLITE ASBESTO	ND	ND	OBSERVED	OBSERVED	OBSERVED	NSF
% AMOSITE ASBESTOS *	ND	ND	ND	ND	ND	NSF
% OTHER NON-ASBESTOS MATERI	OBSERVED	OBSERVED	OBSERVED	OBSERVED	OBSERVED	NSF
PERCENT SOLIDS	86 / 86	83	89	77	86	87

* = Due to the nature of the asbestos sample (dust, debris, soil or vacuum), percentages of the constituents could not be assigned
 "OBSERVED" = Asbestos or Non-Asbestos materials were observed by the lab.
 TRPH = Total Recoverable Petroleum Hydrocarbons (TRPH)

Attachment B: Complete Analytical Results -- Geoprobe and Surface Soils -- SVOCs

Ohio EPA Sample ID # :	MS-SO-06D	MS-SO-A-1	MS-SO-A-2	MS-SO-B-1	MS-SO-C-1	-----
Ohio EPA Sampling Location :	GP-6	Pile A (W. Half)	Pile A (E. Half)	Pile B	Pile C	RAS -- CRDL
Matrix :	Soil	Soil	Soil	Soil	Soil	Soil
Units :	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Date & Time Sampled :	07/26/01, 13:00	07/25/01, 15:15	07/25/01, 16:00	07/26/01, 08:00	07/26/01, 10:00	-----
Sample Depth (feet) :	4-5.8' -- Deep	0-1' -- Shallow	0-0.5' -- Shallow	0-0.5' -- Shallow	0-0.5' -- Shallow	-----
QA / QC Information :	-----	-----	-----	-----	-----	RAS -- CRDL
Semi-Volatile Compound	Result	Result	Result	Result	Result	Result
Benzaldehyde	ND	ND	ND	ND	ND	330
Phenol	ND	ND	ND	ND	ND	330
bis-(2-Chloroethyl) ether	ND	ND	ND	ND	ND	330
2-Chlorophenol	ND	ND	ND	ND	ND	330
2-Methylphenol	ND	ND	ND	ND	ND	330
2,2'-oxybis(1-Chloropropane)	ND	ND	ND	ND	ND	330
Acetophenone	ND	ND	ND	ND	ND	330
4-Methylphenol	ND	ND	ND	ND	ND	330
N-Nitroso-di-n-propylamine	ND	ND	ND	ND	ND	330
Hexachloroethane	ND	ND	ND	ND	ND	330
Nitrobenzene	ND	ND	ND	ND	ND	330
Isophorone	ND	ND	ND	ND	ND	330
2-Nitrophenol	ND	ND	ND	ND	ND	330
2,4-Dimethylphenol	ND	ND	ND	ND	ND	330
bis(2-Chloroethoxy)methane	ND	ND	ND	ND	ND	330
2,4-Dichlorophenol	ND	ND	ND	ND	ND	330
Naphthalene	ND	ND	ND	1650	ND	330
4-Chloroaniline	ND	ND	ND	ND	ND	330
Hexachlorobutadiene	ND	ND	ND	ND	ND	330
Caprolactam	ND	ND	ND	ND	ND	330
4-Chloro-3-methylphenol	ND	ND	ND	ND	ND	330
2-Methylnaphthalene	ND	ND	ND	ND	ND	330
Hexachlorocyclopentadiene	ND	ND	ND	ND	ND	330
2,4,6-Trichlorophenol	ND	ND	ND	ND	ND	330
2,4,5-Trichlorophenol	ND	ND	ND	ND	ND	800
1,1'-Biphenyl	ND	ND	ND	ND	ND	330
2-Chloronaphthalene	ND	ND	ND	ND	ND	330
2-Nitroaniline	ND	ND	ND	ND	ND	800
Dimethylphthalate	ND	ND	ND	ND	ND	330
2,6-Dinitrotoluene	ND	ND	ND	ND	ND	330
Acenaphthylene	ND	ND	ND	ND	ND	330
3-Nitroaniline	ND	ND	ND	ND	ND	800
Acenaphthene	ND	ND	ND	ND	ND	330

Attachment B: Complete Analytical Results -- Geoprobe and Surface Soils -- SVOCs

Ohio EPA Sample ID # :	MS-SO-06D	MS-SO-A-1	MS-SO-A-2	MS-SO-B-1	MS-SO-C-1	-----
Ohio EPA Sampling Location :	GP-6	Pile A (W. Half)	Pile A (E. Half)	Pile B	Pile C	RAS -- CRDL
Matrix :	Soil	Soil	Soil	Soil	Soil	Soil
Units :	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Date & Time Sampled :	07/26/01, 13:00	07/25/01, 15:15	07/25/01, 16:00	07/26/01, 08:00	07/26/01, 10:00	-----
Sample Depth (feet) :	4-5.8' -- Deep	0-1' -- Shallow	0-0.5' -- Shallow	0-0.5' -- Shallow	0-0.5' -- Shallow	-----
QA / QC Information :	-----	-----	-----	-----	-----	RAS -- CRDL
Semi-Volatile Compound	Result	Result	Result	Result	Result	Result
2,4-Dinitrophenol	ND	ND	ND	ND	ND	800
4-Nitrophenol	ND	ND	ND	ND	ND	800
Dibenzofuran	ND	ND	ND	ND	ND	330
2,4-Dinitrotoluene	ND	ND	ND	ND	ND	330
Diethylphthalate	ND	ND	ND	ND	ND	330
Fluorene	ND	ND	ND	ND	ND	330
4-Chlorophenyl-phenyl ether	ND	ND	ND	ND	ND	330
4-Nitroaniline	ND	ND	ND	ND	ND	800
4,6-Dinitro-2-methylphenol	ND	ND	ND	ND	ND	800
N-Nitrosodiphenylamine	ND	ND	ND	ND	ND	330
4-Bromophenyl-phenyl ether	ND	ND	ND	ND	ND	330
Hexachlorobenzene	ND	ND	ND	ND	ND	330
Atrazine	ND	ND	ND	ND	ND	330
Pentachlorophenol	ND	ND	ND	ND	ND	800
Phenanthrene	ND	1280	1940	1900	1900	330
Anthracene	ND	ND	ND	ND	ND	330
Carbazole	ND	ND	ND	ND	ND	330
Di-n-butylphthalate	ND	ND	ND	ND	ND	330
Fluoranthene	ND	2740	3070	2190	4170	330
Pyrene	ND	2620	2850	1820	3130	330
Butylbenzylphthalate	ND	ND	ND	ND	ND	330
3,3'-Dichlorobenzidine	ND	ND	ND	ND	ND	330
Benzo(a)anthracene	ND	1660	1570	910	1500	330
Chrysene	ND	1620	1630	1030	1510	330
bis(2-Ethylhexyl)phthalate	ND	ND	ND	ND	ND	330
Di-n-octylphthalate	ND	ND	ND	ND	ND	330
Benzo(b)fluoranthene	ND	3110	2950	1920	3060	330
Benzo(k)fluoranthene	ND	ND	ND	ND	ND	330
Benzo(a)pyrene	ND	1630	1490	901	1550	330
Indeno(1,2,3-cd)pyrene	ND	914	900	ND	1080	330
Dibenzo(a,h)anthracene	ND	ND	ND	ND	ND	330
Benzo(g,h,i)perylene	ND	1040	998	ND	1190	330

Miscellaneous Parameters	Result	Result	Result	Result	Result	Result
TRPH	470	870	810	700	780	N/A
% CHRYSOLITE ASBESTO	ND	OBSERVED	NSF	OBSERVED	OBSERVED	N/A
% AMOSITE ASBESTOS *	ND	OBSERVED	NSF	ND	ND	N/A
% OTHER NON-ASBESTOS MATER	OBSERVED	OBSERVED	NSF	OBSERVED	OBSERVED	N/A
PERCENT SOLIDS	81	84 / 94	87 / 94	89 / 83	85	N/A

* = Due to the nature of the asbestos sample (dust, debris, soil or vacuum), percentages of the constituents could not be assigned

"OBSERVED" = Asbestos or Non-Asbestos materials were observed by the lab.

TRPH = Total Recoverable Petroleum Hydrocarbons (TRPH)

Table 3:
Analytical Results --
Geoprobe and Surface Soils --
PCBs

Ohio EPA Sample ID # :	MS-GP-01S	MS-GP-01D	MS-GP-02S	MS-GP-02D	MS-GP-03S	MS-GP-03D
Ohio EPA Sampling Location :	GP-1	GP-1	GP-2	GP-2	GP-3	GP-3
Matrix :	Soil	Soil	Soil	Soil	Soil	Soil
Units :	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Date & Time Sampled :	07/25/01, 10:50	07/25/01, 11:00	07/25/01, 12:45	07/25/01, 12:50	07/26/01, 09:00	07/26/01, 09:00
Sample Depth (feet) :	0.5-4' -- Shallow	4-20' -- Deep	1-4' -- Shallow	7.5-22.5' -- Deep	0-4' -- Shallow	5-13' -- Deep
QA / QC Information :	-----	-----	-----	-----	-----	-----
Pesticide / PCB Compound	Result	Result	Result	Result	Result	Result
Aroclor-1260	1.1	0.161	0.322	ND	0.73	0.382

Ohio EPA Sample ID # :	MS-SO-04S	MS-SO-04D	MS-SO-05S	MS-SO-05D	-----	-----
Ohio EPA Sampling Location :	GP-4	GP-4	GP-5	GP-5	Trough	East Side
Matrix :	Soil	Soil	Soil	Soil	Soil	Soil
Units :	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Date & Time Sampled :	07/26/01, 11:30	07/26/01, 11:45	07/26/01, 12:00	07/26/01, 12:30	07/26/01, 13:00	07/26/01, 13:30
Sample Depth (feet) :	0.5-3' -- Shallow	5-12' -- Deep	0.5-4' -- Shallow	13-14' -- Deep	0-4' -- Shallow	0-4' -- Shallow
QA / QC Information :	-----	-----	-----	-----	-----	Dup. of Trough
Pesticide / PCB Compound	Result	Result	Result	Result	Result	Result
Aroclor-1260	0.641	ND	0.21	1.1	65.1	66.5

Ohio EPA Sample ID # :	MS-SO-06D	MS-SO-A-1	MS-SO-A-2	MS-SO-B-1	MS-SO-C-1	-----
Ohio EPA Sampling Location :	GP-6	Pile A (W. Half)	Pile A (E. Half)	Pile B	Pile C	RAS -- CRDL
Matrix :	Soil	Soil	Soil	Soil	Soil	Soil
Units :	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Date & Time Sampled :	07/26/01, 13:00	07/25/01, 15:15	07/25/01, 16:00	07/26/01, 08:00	07/26/01, 10:00	-----
Sample Depth (feet) :	4-5.8' -- Deep	0-1' -- Shallow	0-1' -- Shallow	0-0.5' -- Shallow	0-0.5' -- Shallow	-----
QA / QC Information :	-----	-----	-----	-----	-----	RAS -- CRDL
Pesticide / PCB Compound	Result	Result	Result	Result	Result	Result
Aroclor-1260	ND	159	13.8	5.63	13.1	33

STANDARD ABBREVIATIONS:

B = Analyte in associated blank and in sample (method blank contamination) or estimate value;

CLP = Contract Lab Program; CRL = Central Regional Laboratory; CRDL = Contract Required Detection Limit;

CRQL = Contract Required Quantification Limit; GW = ground water; J = estimated value; N/A = Not Applicable; ND= Not Detected;

D = Metals--Matrix Spike Duplicate; D or DL = diluted; E = estimated - exceeds GC's upper calibration limit; G = Elevated reporting level;

M = Analyte is confirmed to be qualitatively present in the sample, extract or digest; and is at or above the MDL, but below CRL.

NSF = Not Sampled For; MS = Matrix Spike; MSD = Matrix Spike Duplicate; P = lower of two GC columns reported;

S = Metals--Matrix Spike Duplicate; SE = sediment sample; SO = soil sample; TCLP = Toxicity Characteristic Leaching Procedure

R = Rejected -- data are unusable (analyte may or may not be present); RE = Re-analyzed by lab;

TICs = Tentatively Identified Compounds; ug/L = PPB = ug/kg = ng/gm; mg/L = PPM = mg/kg = ug/mL = ug/gm = ng/mg;

U and JJ = analyte analyzed for, but not detected above the reported quantification limit; and, X = GC could not distinguish peaks.

VS = Volatile samples have analyte concentrations reported at or above the CRQL and more than or equal to the method blank concentration. The associated method blank concentration is more than or equal to the concentration criteria. Hits are qualified VS.

Attachment B: Complete Analytical Results -- Geoprobe and Surface Soils -- Total Metals

Ohio EPA Sample ID # :	MS-GP-01S	MS-GP-01D	MS-GP-02S	MS-GP-02D	MS-GP-03S	MS-GP-03D
Ohio EPA Sampling Location :	GP-1	GP-1	GP-2	GP-2	GP-3	GP-3
Matrix :	Soil	Soil	Soil	Soil	Soil	Soil
Units :	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Date & Time Sampled :	07/25/01, 10:50	07/25/01, 11:00	07/25/01, 12:45	07/25/01, 12:50	07/26/01, 09:00	07/26/01, 09:00
Sample Depth (feet) :	0.5-4' -- Shallow	4-20' -- Deep	1-4' -- Shallow	7.5-22.5' -- Deep	0-4' -- Shallow	5-13' -- Deep
QA / QC Information :	-----	-----	-----	-----	-----	-----
ANALYTE	Result	Result	Result	Result	Result	Result
SILVER	ND	ND	ND	ND	ND	ND
ALUMINUM	6780	3530	9760	4290	6980	9590
ARSENIC	26.2	9.11	19.6	6.28	31.9	4.43
BARIUM	79.3	24.3	128	42.2	117	71.2
BERYLLIUM	ND	ND	ND	ND	ND	ND
CALCIUM	36500	2180	39500	8830	28300	29000
CADMIUM	0.567	ND	ND	ND	0.623	ND
COBALT	3.96	4.36	4.15	3.73	ND	5.88
CHROMIUM	51.3	6.48	7.59	5.8	11.2	6.03
COPPER	60.1	10.6	23	8.01	50.3	15
IRON	13200	10700	13500	8420	23700	10700
MERCURY	0.205	0.127	0.225	ND	0.367	0.526
POTASSIUM	511	445	653	351	631	504
MAGNESIUM	6100	1000	2920	895	4250	2310
MANGANESE	1220	186	1420	332	874	755
SODIUM	238	97.5	198	ND	336	154
NICKEL	16.6	8.12	7.72	6.67	12	18.8
LEAD	88.7	14.7	24.2	9.76	60.5	21.9
ANTIMONY	ND	ND	ND	ND	ND	ND
SELENIUM	0.563	ND	0.769	ND	0.941	ND
THALLIUM	ND	ND	ND	ND	ND	ND
VANADIUM	15.5	7.6	8.02	5.99	10.1	6.69
ZINC	184	39	62.3	30.6	251	125
CYANIDE	NSF	NSF	NSF	NSF	NSF	NSF

STANDARD ABBREVIATIONS:

B = Analyte in associated blank and in sample (method blank contamination) or estimate value;

CLP = Contract Lab Program; CRL = Central Regional Laboratory; CRDL = Contract Required Detection Limit;

CRQL = Contract Required Quantification Limit; GW = ground water; J = estimated value; MS = Matrix Spike; MSD = Matrix Spike Duplicate;

D = Metals--Matrix Spike Duplicate; D or DL = diluted; E = estimated - exceeds GC's upper calibration limit; G = Elevated reporting level;

M = Analyte is confirmed to be qualitatively present in the sample, extract or digest; and is at or above the MDL, but below CRL.

N/A = Not Applicable; ND = Not Detected; NR = Not Reported; NSF = Not Sampled For; P = lower of two GC columns reported;

R = Rejected -- data are unusable (analyte may or may not be present); RE = Re-analyzed by lab;

S = Metals--Matrix Spike Duplicate; SE = sediment sample; SO = soil sample; TCLP = Toxicity Characteristic Leaching Procedure

TICs = Tentatively Identified Compounds; U and UJ = analyte analyzed for, but not detected above the reported quantification limit;

ug/L = PPB = ug/kg = ng/gm; mg/L = PPM = mg/kg = ug/mL = ug/gm = ng/mg; and, X = GC could not distinguish peaks.

Attachment B: Complete Analytical Results -- Geoprobe and Surface Soils -- Total Metals

Ohio EPA Sample ID # :	MS-SO-04S	MS-SO-04D	MS-SO-05S	MS-SO-05D	-----	-----
Ohio EPA Sampling Location :	GP-4	GP-4	GP-5	GP-5	Trough	East Side
Matrix :	Soil	Soil	Soil	Soil	Soil	Soil
Units :	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Date & Time Sampled :	07/26/01, 11:30	07/26/01, 11:45	07/26/01, 12:00	07/26/01, 12:30	07/26/01, 13:00	07/26/01, 13:30
Sample Depth (feet) :	0.5-3' -- Shallow	5-12' -- Deep	0.5-4' -- Shallow	13-14' -- Deep	0-4' -- Shallow	0-4' -- Shallow
QA / QC Information :	-----	-----	-----	-----	-----	Dup. of Trough
ANALYTE	Result	Result	Result	Result	Result	Result
SILVER	ND	ND	ND	ND	ND	ND
ALUMINUM	1380	2400	5520	6680	8430	7940
ARSENIC	69.3	11.5	3.51	3.14	36.3	24.9
BARIUM	80.1	33.6	69.7	37.3	172	208
BERYLLIUM	ND	ND	ND	ND	ND	ND
CALCIUM	6220	2260	24200	1200	25500	26700
CADMIUM	ND	ND	ND	ND	0.757	1.1
COBALT	ND	ND	ND	5.79	8.2	6.65
CHROMIUM	8.67	5.99	11.4	10.7	37.2	27.7
COPPER	25.9	15.8	22.9	11	91	425
IRON	37300	19600	13800	14900	28300	28300
MERCURY	1.93	0.226	ND	ND	0.188	0.269
POTASSIUM	735	664	613	472	801	746
MAGNESIUM	298	508	4370	1340	4180	4160
MANGANESE	62.2	30.4	615	306	813	751
SODIUM	384	221	245	ND	157	155
NICKEL	ND	3.84	5.57	9.42	26	19.5
LEAD	57.1	9.63	13.9	7.72	90.4	56.8
ANTIMONY	ND	ND	ND	ND	ND	ND
SELENIUM	1.58	ND	ND	ND	ND	ND
THALLIUM	ND	ND	ND	ND	ND	ND
VANADIUM	12.1	6.79	9.86	11.8	15.4	13.9
ZINC	29.3	17.1	43.8	41.9	203	220
CYANIDE	NSF	NSF	NSF	NSF	NSF	NSF

STANDARD ABBREVIATIONS:

B = Analyte in associated blank and in sample (method blank contamination) or estimate value;

CLP = Contract Lab Program; CRL = Central Regional Laboratory; CRDL = Contract Required Detection Limit;

CRQL = Contract Required Quantification Limit; GW = ground water; J = estimated value; MS = Matrix Spike; MSD = Matrix Spike Duplicate;

D = Metals--Matrix Spike Duplicate; D or DL = diluted; E = estimated - exceeds GC's upper calibration limit; G = Elevated reporting level;

M = Analyte is confirmed to be qualitatively present in the sample, extract or digest; and is at or above the MDL, but below CRL.

N/A = Not Applicable; ND= Not Detected; NR = Not Reported; NSF = Not Sampled For; P = lower of two GC columns reported;

R = Rejected -- data are unusable (analyte may or may not be present); RE = Re-analyzed by lab;

S = Metals--Matrix Spike Duplicate; SE = sediment sample; SO = soil sample; TCLP = Toxicity Characteristic Leaching Procedure

TICs = Tentatively Identified Compounds; U and UJ = analyte analyzed for, but not detected above the reported quantification limit;

ug/L = PPB = ug/kg = ng/gm; mg/L = PPM = mg/kg = ug/mL = ug/gm = ng/mg; and, X = GC could not distinguish peaks.

Attachment B: Complete Analytical Results -- Geoprobe and Surface Soils -- Total Metals

Ohio EPA Sample ID # : Ohio EPA Sampling Location Matrix : Units : Date & Time Sampled : Sample Depth (feet) : QA / QC Information :	MS-SO-06D GP-6 Soil mg/kg 07/26/01, 13:00 4-5.8' -- Deep -----	MS-SO-A-1 Pile A (W. Half) Soil mg/kg 07/25/01, 15:15 0-1' -- Shallow -----	MS-SO-A-2 Pile A (E. Half) Soil mg/kg 07/25/01, 16:00 0-1' -- Shallow -----	MS-SO-B-1 Pile B Soil mg/kg 07/26/01, 08:00 0-0.5' -- Shallow -----	MS-SO-C-1 Pile C Soil mg/kg 07/26/01, 10:00 0-0.5' -- Shallow -----	----- RAS -- CRDL Soil mg/kg ----- RAS -- CRDL
ANALYTE	Result	Result	Result	Result	Result	Result
SILVER	ND	ND	ND	ND	ND	2
ALUMINUM	2560	7020	7960	7980	7810	40
ARSENIC	120	35.7	87.9	22	66.2	2
BARIUM	33.9	189	349	331	131	40
BERYLLIUM	ND	ND	ND	ND	ND	1
CALCIUM	386	39300	32300	32400	49600	1000
CADMIUM	ND	0.551	1.94	ND	1.13	1
COBALT	ND	11.9	6.72	4.72	3.16	10
CHROMIUM	8.53	40.8	54.2	33.4	24.6	2
COPPER	9.41	96.2	11000	6940	662	5
IRON	39600	26100	30900	32200	22100	20
MERCURY	ND	0.657	0.87	0.273	0.397	0.1
POTASSIUM	417	694	1020	780	636	1000
MAGNESIUM	420	5270	5280	5160	8640	1000
MANGANESE	28.6	1700	825	619	973	3
SODIUM	283	282	224	1140	302	1000
NICKEL	ND	24.4	33.8	23.7	16.7	8
LEAD	8.92	416	694	77.8	208	0.6
ANTIMONY	ND	ND	ND	ND	ND	12
SELENIUM	1.09	ND	3.51	0.819	1.74	1
THALLIUM	ND	0.664	1.5	ND	0.749	2
VANADIUM	12.5	13.6	15.1	17.5	14.4	10
ZINC	17.6	437	953	240	584	4
CYANIDE	NSF	NSF	NSF	NSF	NSF	NSF

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CRQL = Contract Required Quantification Limit; GW = ground water; J = estimated value; MS = Matrix Spike; MSD = Matrix Spike Duplicate;
D = Metals--Matrix Spike Duplicate; D or DL = diluted; E = estimated - exceeds GC's upper calibration limit; G = Elevated reporting level;
M = Analyte is confirmed to be qualitatively present in the sample, extract or digest; and is at or above the MDL, but below CRL.
N/A = Not Applicable; ND= Not Detected; NR = Not Reported; NSF = Not Sampled For; P = lower of two GC columns reported;
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S = Metals--Matrix Spike Duplicate; SE = sediment sample; SO = soil sample; TCLP = Toxicity Characteristic Leaching Procedure
TICs = Tentatively Identified Compounds; U and UJ = analyte analyzed for, but not detected above the reported quantification limit;
ug/L = PPB = ug/kg = ng/gm; mg/L = PPM = mg/kg = ug/mL = ug/gm = ng/mg; and, X = GC could not distinguish peaks.

Attachment C:

**Complete Analytical Results --
Ground & Surface Waters**

(6 total pages)

Attachment C: Complete Analytical Results -- Ground and Surface Waters --Total Metals

Ohio EPA Sample ID # :	P-1 GP-1	MS-GP-01 GP-1	MS-GP-02 GP-2	MS-GP-03 GP-3	----- BASEMENT SURFACE WATER	TRIP BLANK ----- Ground Water	RAS -- CRDL ----- Ground Water
Ohio EPA Sampling Location :	Ground Water	Ground Water	Ground Water	Ground Water	SURFACE WATER	Ground Water	Ground Water
Matrix :	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Units :							
Date & Time Sampled :	07/25/01, 14:35	07/25/01, 14:35	07/25/01, 16:30	07/26/01, 10:30	07/26/01, 14:30	07/18/01, 12:00	-----
QA / QC Information :	-----	Dup. of P-1	-----	-----	SURFACE WATER	TRIP BLANK	RAS -- CRDL
ANALYTE	Result	Result	Result	Result	Result	Result	Result
SILVER	ND	ND	ND	28	ND	NSF	10
ALUMINUM	688	2300	667	8650	ND	NSF	200
ARSENIC	31.4	33	18.6	5.2	ND	NSF	10
BARIUM	ND	55.1	ND	ND	ND	NSF	200
BERYLLIUM	ND	ND	ND	2.92	ND	NSF	5
CALCIUM	29.6	30.4	190	257	112	NSF	5000
CADMIUM	ND	ND	ND	ND	ND	NSF	5
COBALT	ND	ND	ND	41.1	ND	NSF	50
CHROMIUM	ND	ND	ND	ND	ND	NSF	10
COPPER	ND	ND	ND	45.7	ND	NSF	25
IRON	14900	18100	7220	12700	276	NSF	100
MERCURY	ND	ND	0.234	ND	ND	NSF	0.2
POTASSIUM	2.97	3.31	4.15	3.94	13.4	NSF	5000
MAGNESIUM	4.79	5.28	23.5	23.3	24	NSF	5000
MANGANESE	1220	1310	3640	1970	27.8	NSF	15
SODIUM	201	208	9.64	35	133	NSF	5000
NICKEL	ND	ND	ND	89.3	ND	NSF	40
LEAD	7.17	10.6	11	10.4	ND	NSF	3
ANTIMONY	ND	ND	ND	ND	ND	NSF	60
SELENIUM	ND	ND	ND	ND	ND	NSF	5
THALLIUM	ND	ND	ND	ND	ND	NSF	10
VANADIUM	ND	ND	ND	ND	ND	NSF	50
ZINC	ND	ND	ND	603	ND	NSF	20
CYANIDE	ND	ND	ND	ND	ND	NSF	10

Chemical Oxygen Demand	NSF	NSF	NSF	NSF	ND	NSF	NSF
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 CRQL = Contract Required Quantification Limit; GW = ground water; J = estimated value; N/A = Not Applicable; ND= Not Detected;
 D = Metals--Matrix Spike Duplicate; D or DL = diluted; E = estimated - exceeds GC's upper calibration limit; G = Elevated reporting level;
 M = Analyte is confirmed to be qualitatively present in the sample, extract or digest; and is at or above the MDL, but below CRL.
 NSF = Not Sampled For; MS = Matrix Spike; MSD = Matrix Spike Duplicate; P = lower of two GC columns reported;
 S = Metals--Matrix Spike Duplicate; SE = sediment sample; SO = soil sample; TCLP = Toxicity Characteristic Leaching Procedure
 R = Rejected -- data are unusable (analyte may or may not be present); RE = Re-analyzed by lab;
 TICs = Tentatively Identified Compounds; ug/L = PPB = ug/kg = ng/gm; mg/L = PPM = mg/kg = ug/mL = ug/gm = ng/mg;
 U and UJ = analyte analyzed for, but not detected above the reported quantification limit; and, X = GC could not distinguish peaks.

VS = Volatile samples have analyte concentrations reported at or above the CRQL and more than or equal to the method blank concentration. The associated

Attachment C: Complete Analytical Results --- Geoprobe and Surface Waters -- PCBs

Ohio EPA Sample ID # :	P-1	MS-GP-01W	MS-GP-02W	MS-GP-03W	-----	TRIP BLANK	-----
Ohio EPA Sampling Location :	GP-1	GP-1	GP-2	GP-3	BASEMENT	-----	RAS -- CRQL
Matrix :	Ground Water	Ground Water	Ground Water	Ground Water	SURFACE WATER	Ground Water	Ground Water
Units :	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Date & Time Sampled :	07/25/01, 14:35	07/25/01, 14:35	07/25/01, 16:30	07/26/01, 10:30	07/26/01, 14:30	07/18/01, 12:00	RAS CRQL
QA / QC Information :	-----	Dup. of P-1	-----	-----	SURFACE WATER	TRIP BLANK	-----
PCB Compound	Result	Result	Result	Result	Result	Result	Result
Aroclor-1016	ND	ND	ND	ND	NSF	NSF	1
Aroclor-1221	ND	ND	ND	ND	NSF	NSF	1
Aroclor-1232	ND	ND	ND	ND	NSF	NSF	2
Aroclor-1242	ND	ND	ND	ND	NSF	NSF	1
Aroclor-1248	ND	ND	ND	ND	NSF	NSF	1
Aroclor-1254	ND	ND	ND	ND	NSF	NSF	1
Aroclor-1260	3.82	ND	ND	ND	NSF	NSF	1

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D = Metals--Matrix Spike Duplicate; D or DL = diluted; E = estimated - exceeds GC's upper calibration limit; G = Elevated reporting level;

M = Analyte is confirmed to be qualitatively present in the sample, extract or digest; and is at or above the MDL, but below CRL.

NSF = Not Sampled For; MS = Matrix Spike; MSD = Matrix Spike Duplicate; P = lower of two GC columns reported;

S = Metals--Matrix Spike Duplicate; SE = sediment sample; SO = soil sample; TCLP = Toxicity Characteristic Leaching Procedure

R = Rejected -- data are unusable (analyte may or may not be present); RE = Re-analyzed by lab;

TICs = Tentatively Identified Compounds; ug/L = PPB = ug/kg = ng/gm; mg/L = PPM = mg/kg = ug/mL = ug/gm = ng/mg;

U and UJ = analyte analyzed for, but not detected above the reported quantification limit; and, X = GC could not distinguish peaks.

VS = Volatile samples have analyte concentrations reported at or above the CRQL and more than or equal to the method blank concentration. The associated method blank concentration is more than or equal to the concentration criteria. Hits are qualified VS.

Attachment C:
Complete Analytical Results --
Ground and Surface Waters --
SVOCs

Ohio EPA Sample ID # :	P-1	MS-GP-01	MS-GP-02	MS-GP-03	-----	TRIP BLANK	-----
Ohio EPA Sampling Location :	GP-1	GP-1	GP-2	GP-3	BASEMENT	-----	RAS -- CRQL
Matrix :	Ground Water	Ground Water	Ground Water	Ground Water	SURFACE WATER	Ground Water	Ground Water
Units :	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Date & Time Sampled :	07/25/01, 14:35	07/25/01, 14:35	07/25/01, 16:30	07/26/01, 10:30	07/26/01, 14:30	07/18/01, 12:00	RAS CRQL
QA / QC Information :	-----	Dup. of P-1	-----	-----	SURFACE WATER	TRIP BLANK	-----
Semi-Volatile Compound	Result	Result	Result	Result	Result	Result	Result
2,4-Dinitrophenol	ND	ND	ND	ND	NSF	NSF	25
4-Nitrophenol	ND	ND	ND	ND	NSF	NSF	25
Dibenzofuran	ND	ND	ND	ND	NSF	NSF	10
2,4-Dinitrotoluene	ND	ND	ND	ND	NSF	NSF	10
Diethylphthalate	ND	ND	ND	ND	NSF	NSF	10
Fluorene	ND	ND	ND	ND	NSF	NSF	10
4-Chlorophenyl-phenyl ether	ND	ND	ND	ND	NSF	NSF	10
4-Nitroaniline	ND	ND	ND	ND	NSF	NSF	25
4,6-Dinitro-2-methylphenol	ND	ND	ND	ND	NSF	NSF	25
N-Nitrosodiphenylamine	ND	ND	ND	ND	NSF	NSF	10
4-Bromophenyl-phenylether	ND	ND	ND	ND	NSF	NSF	10
Hexachlorobenzene	ND	ND	ND	ND	NSF	NSF	10
Atrazine	ND	ND	ND	ND	NSF	NSF	10
Pentachlorophenol	ND	ND	ND	ND	NSF	NSF	25
Phenanthrene	ND	ND	ND	ND	NSF	NSF	10
Anthracene	ND	ND	ND	ND	NSF	NSF	10
Carbazole	ND	ND	ND	ND	NSF	NSF	10
Di-n-butylphthalate	ND	ND	ND	ND	NSF	NSF	10
Fluoranthene	ND	ND	ND	ND	NSF	NSF	10
Pyrene	ND	ND	ND	ND	NSF	NSF	10
Butylbenzylphthalate	ND	ND	ND	ND	NSF	NSF	10
3,3'-Dichlorobenzidine	ND	ND	ND	ND	NSF	NSF	10
Benzo(a)anthracene	ND	ND	ND	ND	NSF	NSF	10
Chrysene	ND	ND	ND	ND	NSF	NSF	10
bis(2-Ethylhexyl)phthalate	ND	ND	ND	ND	NSF	NSF	10
Di-n-octylphthalate	ND	ND	ND	ND	NSF	NSF	10
Benzo(b)fluoranthene	ND	ND	ND	ND	NSF	NSF	10
Benzo(k)fluoranthene	ND	ND	ND	ND	NSF	NSF	10
Benzo(a)pyrene	ND	ND	ND	ND	NSF	NSF	10
Indeno(1,2,3-cd)pyrene	ND	ND	ND	ND	NSF	NSF	10
Dibenzo(a,h)anthracene	ND	ND	ND	ND	NSF	NSF	10
Benzo(g,h,i)perylene	ND	ND	ND	ND	NSF	NSF	10

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CRQL = Contract Required Quantification Limit; GW = ground water; J = estimated value; N/A = Not Applicable; ND= Not Detected;

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M = Analyte is confirmed to be qualitatively present in the sample, extract or digest; and is at or above the MDL, but below CRL.

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S = Metals--Matrix Spike Duplicate; SE = sediment sample; SO = soil sample; TCLP = Toxicity Characteristic Leaching Procedure

R = Rejected -- data are unusable (analyte may or may not be present); RE = Re-analyzed by lab;

TICs = Tentatively Identified Compounds; ug/L = PPB = ug/kg = ng/gm; mg/L = PPM = mg/kg = ug/mL = ug/gm = ng/mg;

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Attachment C:
Complete Analytical Results --
Ground and Surface Waters --
SVOCs

Ohio EPA Sample ID # :	P-1	MS-GP-01	MS-GP-02	MS-GP-03	-----	TRIP BLANK	-----
Ohio EPA Sampling Location :	GP-1	GP-1	GP-2	GP-3	BASEMENT	-----	RAS -- CRQL
Matrix :	Ground Water	Ground Water	Ground Water	Ground Water	SURFACE WATER	Ground Water	Ground Water
Units :	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Date & Time Sampled :	07/25/01, 14:35	07/25/01, 14:35	07/25/01, 16:30	07/26/01, 10:30	07/26/01, 14:30	07/18/01, 12:00	RAS CRQL
QA / QC Information :	-----	Dup. of P-1	-----	-----	SURFACE WATER	TRIP BLANK	-----
Semi-Volatile Compound	Result	Result	Result	Result	Result	Result	Result
Benzaldehyde	ND	ND	ND	ND	NSF	NSF	10
Phenol	ND	ND	ND	ND	NSF	NSF	10
bis-(2-Chloroethyl) ether	ND	ND	ND	ND	NSF	NSF	10
2-Chlorophenol	ND	ND	ND	ND	NSF	NSF	10
2-Methylphenol	ND	ND	ND	ND	NSF	NSF	10
2,2'-oxybis(1-Chloropropane)	ND	ND	ND	ND	NSF	NSF	10
Acetophenone	ND	ND	ND	ND	NSF	NSF	10
4-Methylphenol	ND	ND	ND	ND	NSF	NSF	10
N-Nitroso-di-n-propylamine	ND	ND	ND	ND	NSF	NSF	10
Hexachloroethane	ND	ND	ND	ND	NSF	NSF	10
Nitrobenzene	ND	ND	ND	ND	NSF	NSF	10
Isophorone	ND	ND	ND	ND	NSF	NSF	10
2-Nitrophenol	ND	ND	ND	ND	NSF	NSF	10
2,4-Dimethylphenol	ND	ND	ND	ND	NSF	NSF	10
bis(2-Chloroethoxy)methane	ND	ND	ND	ND	NSF	NSF	10
2,4-Dichlorophenol	ND	ND	ND	ND	NSF	NSF	10
Naphthalene	ND	ND	ND	ND	NSF	NSF	10
4-Chloroaniline	ND	ND	ND	ND	NSF	NSF	10
Hexachlorobutadiene	ND	ND	ND	ND	NSF	NSF	10
Caprolactam	ND	ND	ND	ND	NSF	NSF	10
4-Chloro-3-methylphenol	ND	ND	ND	ND	NSF	NSF	10
2-Methylnaphthalene	ND	ND	ND	ND	NSF	NSF	10
Hexachlorocyclopentadiene	ND	ND	ND	ND	NSF	NSF	10
2,4,6-Trichlorophenol	ND	ND	ND	ND	NSF	NSF	10
2,4,5-Trichlorophenol	ND	ND	ND	ND	NSF	NSF	25
1,1'-Biphenyl	ND	ND	ND	ND	NSF	NSF	10
2-Chloronaphthalene	ND	ND	ND	ND	NSF	NSF	10
2-Nitroaniline	ND	ND	ND	ND	NSF	NSF	25
Dimethylphthalate	ND	ND	ND	ND	NSF	NSF	10
2,6-Dinitrotoluene	ND	ND	ND	ND	NSF	NSF	10
Acenaphthylene	ND	ND	ND	ND	NSF	NSF	10
3-Nitroaniline	ND	ND	ND	ND	NSF	NSF	25
Acenaphthene	ND	ND	ND	ND	NSF	NSF	10

Attachment C:
Complete Analytical Results --
Ground and Surface Waters --
VOCs

Ohio EPA Sample ID # :	P-1 GP-1	MS-GP-01W GP-1	MS-GP-02W GP-2	MS-GP-03W GP-3	----- BASEMENT	TRIP BLANK	----- RAS--CRQL
Ohio EPA Sampling Location :	Ground Water	Ground Water	Ground Water	Ground Water	SURFACE WATER	Ground Water	Ground Water
Matrix :	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Units :	07/25/01, 14:35	07/25/01, 14:35	07/25/01, 16:30	07/26/01, 10:30	07/26/01, 14:30	07/18/01, 12:00	RAS--CRQL
Date & Time Sampled :	-----	Dup. of P-1	-----	-----	SURFACE WATER	TRIP BLANK	-----
QA / QC Information :	Result	Result	Result	Result	Result	Result	Result
Volatile Compound							
2-Hexanone	ND	ND	ND	ND	NSF	ND	10
Dibromochloromethane	ND	ND	ND	ND	NSF	ND	10
1,2-Dibromoethane	ND	ND	ND	ND	NSF	ND	10
Chlorobenzene	ND	ND	ND	ND	NSF	ND	10
Ethylbenzene	ND	ND	ND	ND	NSF	ND	10
Xylenes (total)	ND	ND	ND	ND	NSF	ND	10
Styrene	ND	ND	ND	ND	NSF	ND	10
Bromoform	ND	ND	ND	ND	NSF	ND	10
Isopropylbenzene	ND	ND	ND	ND	NSF	ND	10
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	NSF	ND	10
1,3-Dichlorobenzene	ND	ND	ND	ND	NSF	ND	10
1,4-Dichlorobenzene	ND	ND	ND	ND	NSF	ND	10
1,2-Dichlorobenzene	ND	ND	ND	ND	NSF	ND	10
1,2-Dibromo-3-chloropropane	ND	ND	ND	ND	NSF	ND	10
1,2,4-Trichlorobenzene	ND	ND	ND	ND	NSF	ND	10

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CLP = Contract Lab Program; CRL = Central Regional Laboratory; CRDL = Contract Required Detection Limit;

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TICs = Tentatively Identified Compounds; ug/L = PPB = ug/kg = ng/gm; mg/L = PPM = mg/kg = ug/mL = ug/gm = ng/mg;

U and UJ = analyte analyzed for, but not detected above the reported quantification limit; and, X = GC could not distinguish peaks.

VS = Volatile samples have analyte concentrations reported at or above the CRQL and more than or equal to the method blank concentration. The associated method blank concentration is more than or equal to the concentration criteria. Hits are qualified VS.

Attachment C: Complete Analytical Results -- Ground and Surface Waters -- VOCs

Ohio EPA Sample ID # :	P-1 GP-1	MS-GP-01W GP-1	MS-GP-02W GP-2	MS-GP-03W GP-3	----- BASEMENT	TRIP BLANK	----- RAS-CRQL
Ohio EPA Sampling Location :	Ground Water	Ground Water	Ground Water	Ground Water	SURFACE WATER	Ground Water	Ground Water
Matrix :	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Units :							
Date & Time Sampled :	07/25/01, 14:35	07/25/01, 14:35	07/25/01, 16:30	07/26/01, 10:30	07/26/01, 14:30	07/18/01, 12:00	RAS-CRQL
QA / QC Information :	-----	Dup. of P-1	-----	-----	SURFACE WATER	TRIP BLANK	-----
Volatiles Compound	Result	Result	Result	Result	Result	Result	Result
Dichlorodifluoromethane	ND	ND	ND	ND	NSF	ND	10
Chloromethane	ND	ND	ND	ND	NSF	ND	10
Vinyl Chloride	ND	ND	ND	ND	NSF	ND	10
Bromomethane	ND	ND	ND	ND	NSF	ND	10
Chloroethane	ND	ND	ND	ND	NSF	ND	10
Trichlorofluoromethane	ND	ND	ND	ND	NSF	ND	10
1,1-Dichloroethene	ND	ND	ND	ND	NSF	ND	10
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ND	ND	ND	NSF	ND	10
Acetone	ND	ND	ND	ND	NSF	ND	10
Carbon Disulfide	ND	1.3	ND	ND	NSF	1.1	10
Methyl Acetate	ND	ND	ND	ND	NSF	ND	10
Methylene Chloride	ND	ND	ND	ND	NSF	ND	10
trans-1,2-Dichloroethene	ND	ND	ND	ND	NSF	ND	10
Methyl tert-Butyl Ether	ND	ND	ND	ND	NSF	ND	10
1,1-Dichloroethane	ND	ND	ND	ND	NSF	ND	10
cis-1,2-Dichloroethene	ND	ND	ND	ND	NSF	ND	10
2-Butanone	ND	ND	ND	ND	NSF	ND	10
Chloroform	ND	ND	ND	ND	NSF	ND	10
1,1,1-Trichloroethane	ND	ND	ND	ND	NSF	ND	10
Cyclohexane	ND	ND	ND	ND	NSF	ND	10
Carbon Tetrachloride	ND	ND	ND	ND	NSF	ND	10
Benzene	ND	ND	ND	ND	NSF	ND	10
1,2-Dichloroethane	ND	ND	ND	ND	NSF	ND	10
Trichloroethene	ND	ND	ND	ND	NSF	ND	10
Methylcyclohexane	ND	ND	ND	ND	NSF	ND	10
1,2-Dichloropropane	ND	ND	ND	ND	NSF	ND	10
Bromodichloromethane	ND	ND	ND	ND	NSF	ND	10
cis-1,3-Dichloropropene	ND	ND	ND	ND	NSF	ND	10
4-Methyl-2-pentanone	ND	ND	ND	ND	NSF	ND	10
Toluene	ND	ND	ND	ND	NSF	ND	10
trans-1,3-Dichloropropene	ND	ND	ND	ND	NSF	ND	10
1,1,2-Trichloroethane	ND	ND	ND	ND	NSF	ND	10
Tetrachloroethene	ND	ND	ND	ND	NSF	ND	10

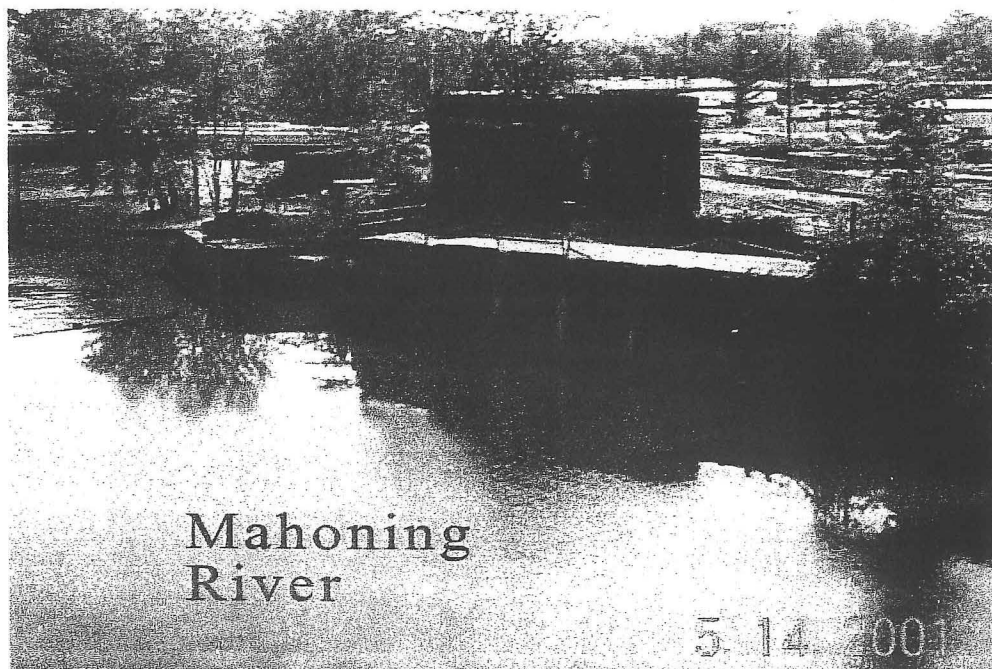
June 26, 2002

Mahoningside Targeted Brownfield Assessment Report

Attachment D:

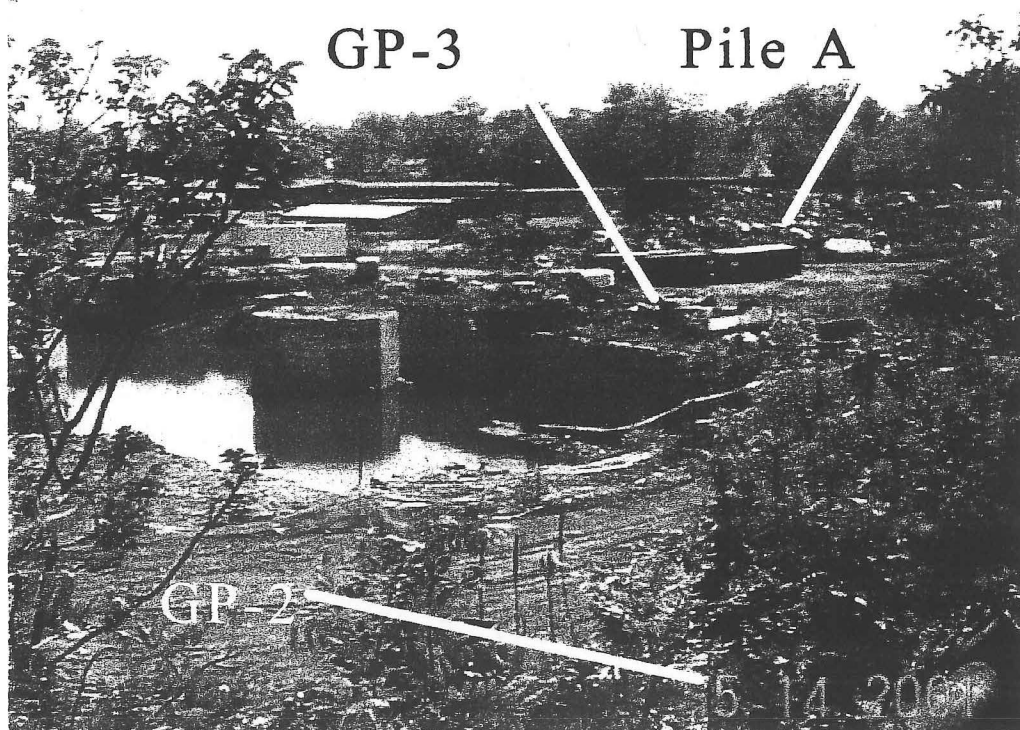
Photographic Log

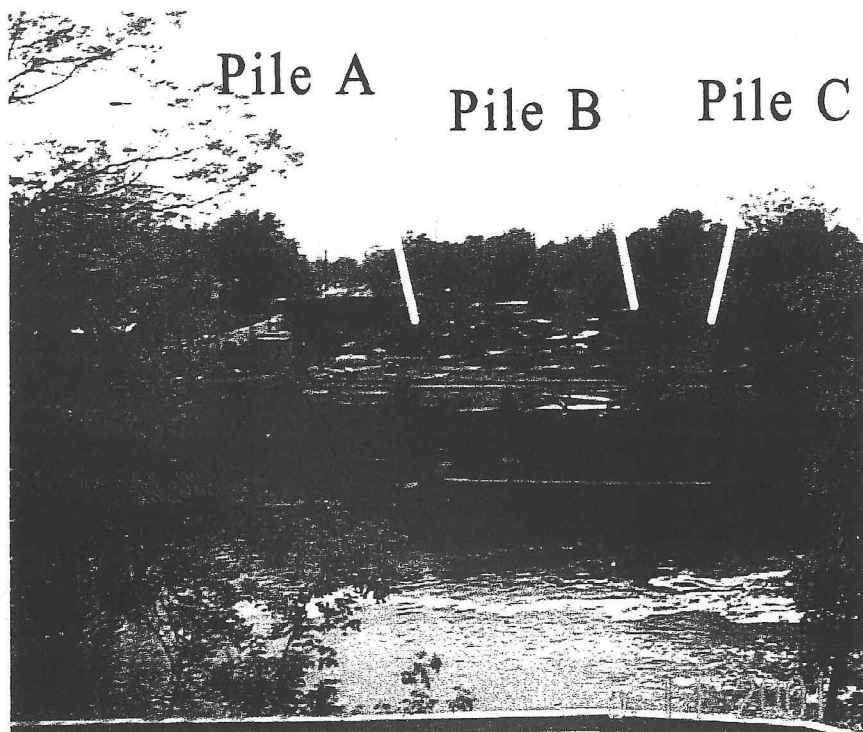
(five total pages)



ABOVE PHOTO: Mahoningside site, May 14, 2001 Reconnaissance
View from East Side of the River, from Railroad Bridge; Looking SouthWest at Site

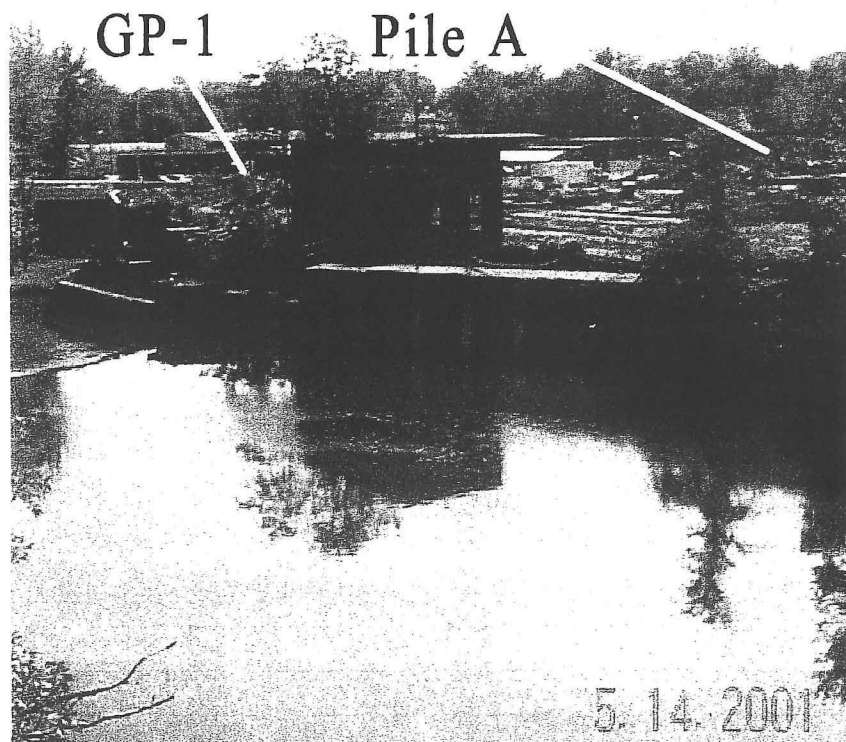
BELOW PHOTO: Mahoningside site, May 14, 2001 Recon with July 24-26, 2001 Sampling Locations
View from West Side of the River, from Railroad; Looking SouthWest at Site

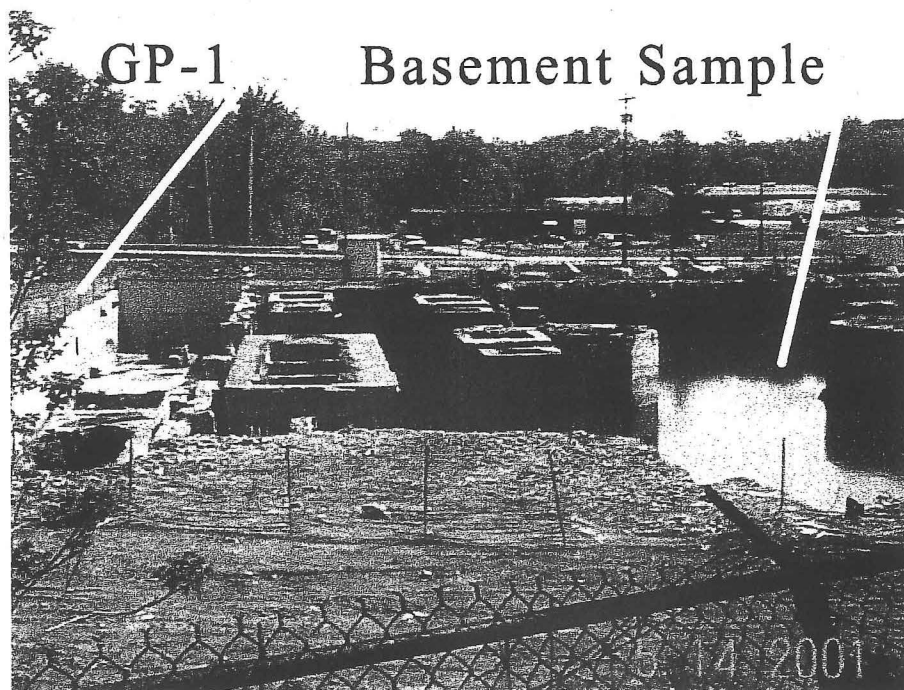




ABOVE PHOTO: Mahoningside site, May 14, 2001 Recon with July 24-26, 2001 Sampling Locations
View from East Side of the River, Looking West

BELOW PHOTO: Mahoningside site, May 14, 2001 Recon with July 24-26, 2001 Sampling Locations
View from East Side of the River, from Railroad Bridge; Looking South West





ABOVE PHOTO: Mahoningside site, May 14, 2001 Recon with July 24-26, 2001 Sampling Locations
View from East Side of the River, Looking West

BELOW PHOTO: Mahoningside site, May 14, 2001 Recon with July 24-26, 2001 Sampling Locations
View from East Side of the River, from Railroad Bridge; Looking South West

GP-3

Pile A



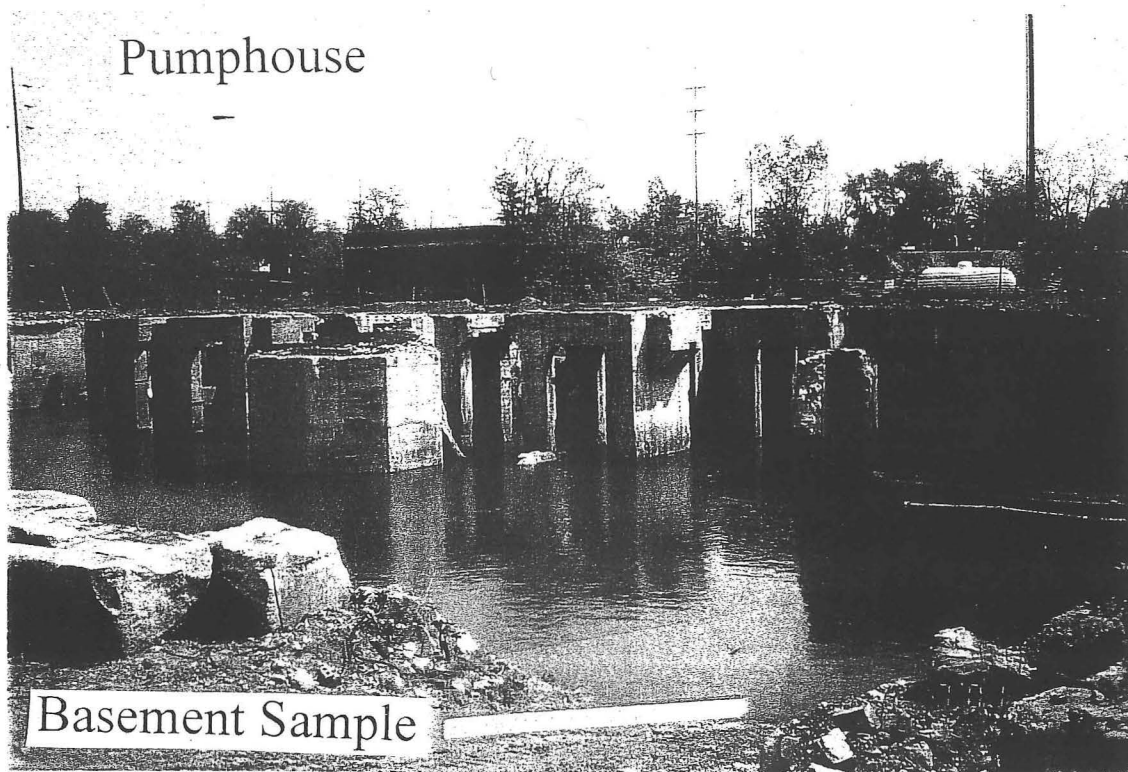


ABOVE PHOTO: Mahoningside site, May 14, 2001 Recon with July 24-26, 2001 Sampling Locations;
View from South West corner of the Basement Foundation; Looking East;
Summit Street in top right hand corner of photo

BELOW PHOTO: Mahoningside site, February 13, 2001 Recon with July 24-26, 2001 Sampling Locations
View from East Side of the River, Looking West from City Park area across Mahoning River;
USEPA Emergency Response operations going on to dredge PCB-contaminated sediment
from the river.

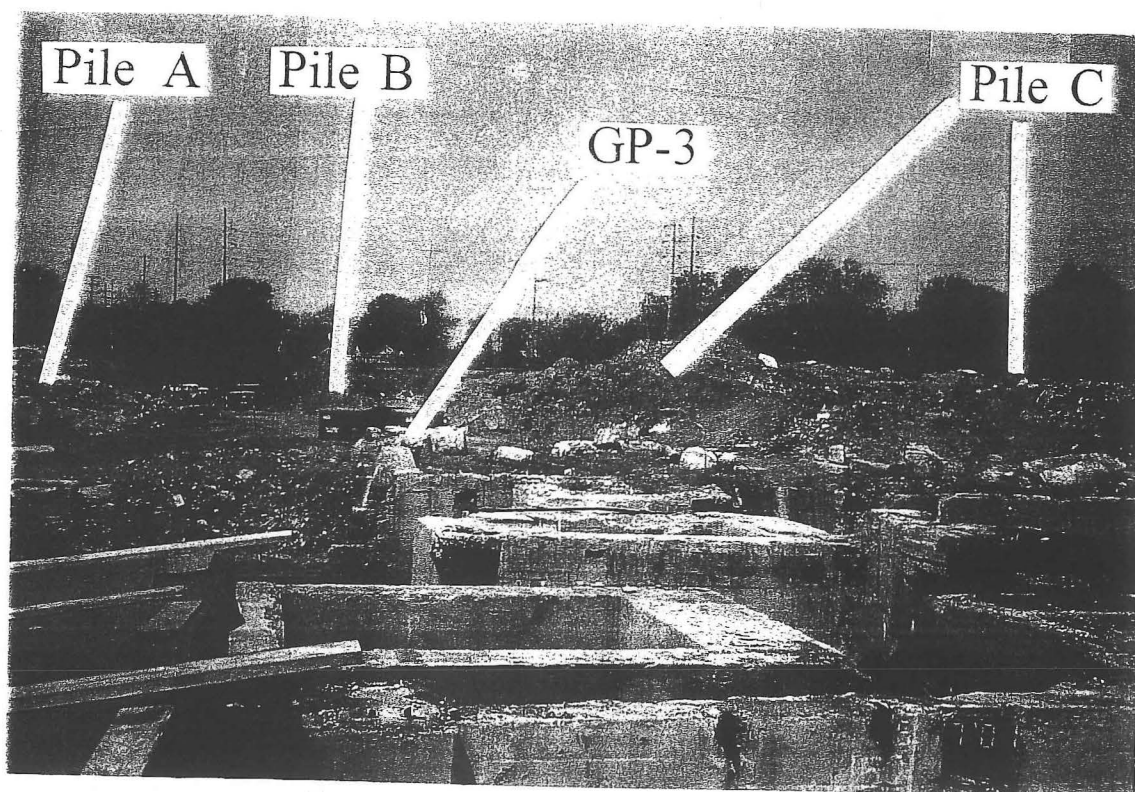
GP-2





ABOVE PHOTO: Mahoningside site, May 14, 2001 Recon with July 24-26, 2001 Sampling Locations; View from South West corner of the Basement Foundation; Looking North East

BELOW PHOTO: Mahoningside site, May 7, 2001 Recon with July 24-26, 2001 Sampling Locations; View from East Side of the Basement Foundation; Looking East





Approximate Scale: 1" = 125'

NORTH

8x30'

Waste storage Area
Substation

Soil Pile B

Soil Pile A

Soil Pile C

12603 Stage

Basement

Mill River

Summit Street

RUSH TAT
- 1/16oz jar
- 1/2qt. ziplock baggie
for ACM analysis

RUSH-TAT

Composite A&C
in to 2/16oz jar. Gr
Full @ TCLP - including PCB
no HCB or EST; pH, phenols etc
LF - parameters

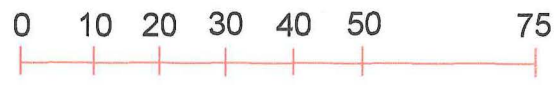
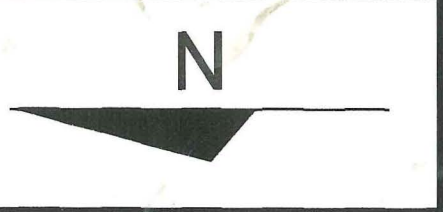
Legend

- ^ Soil Pile Sampling Location
- Composite Group

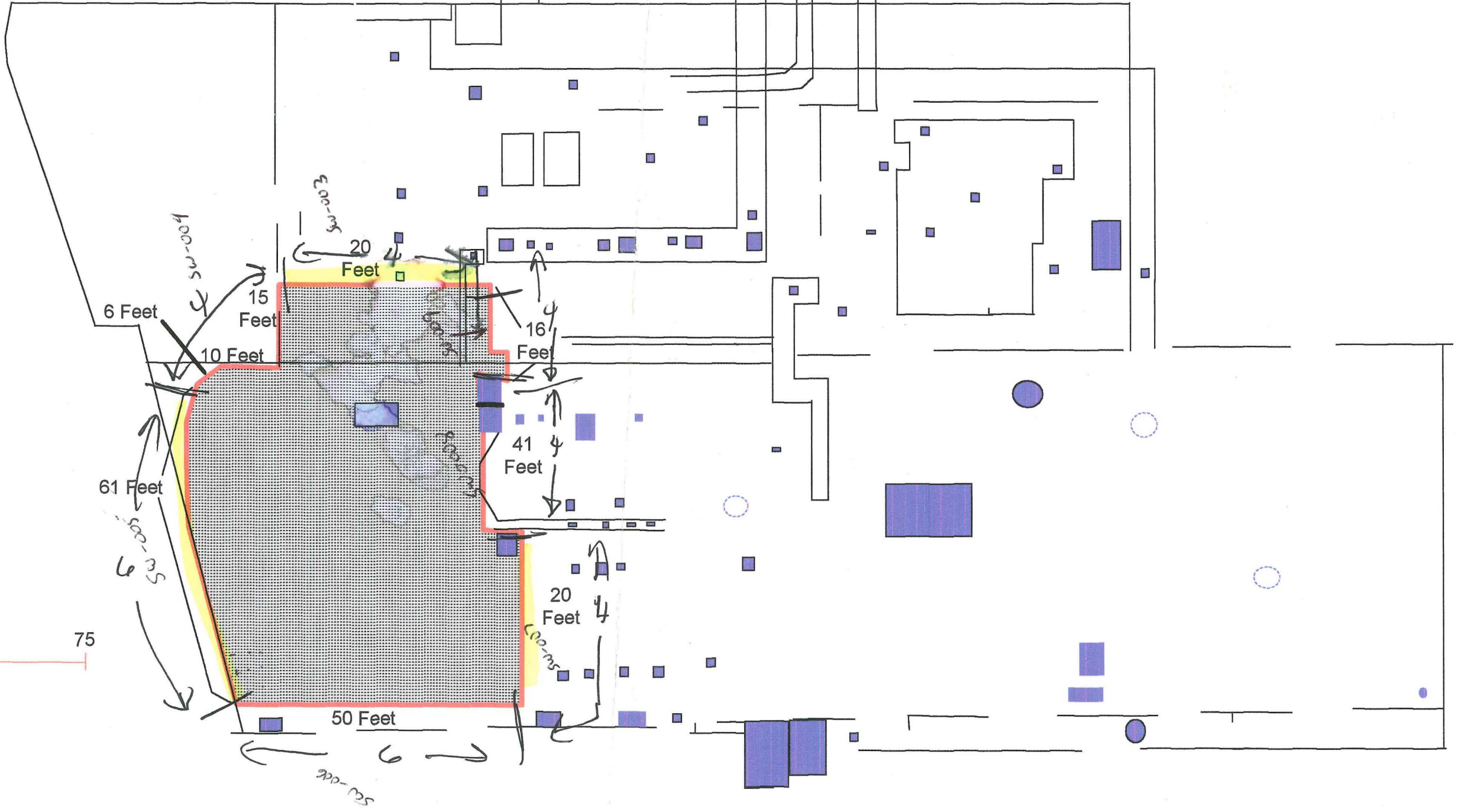
Figure 2

Mahoningside Power Plant

Soil/Debris Pile Sampling Locations



Scale in feet.



Post Excavation Confirmation Sampling Plan for Subsurface Potential PCB Contamination
Mahoningside Power Plant Site
Warren, Trumbull County, Ohio

Locations/Accessibility:

U.S. EPA has tentatively identified up to 20 locations which will be selected as 9-point composite post excavation sampling points for confirmation of adequate cleanup of subsurface PCB contamination at the site. Determining factors utilized to select locations include, but are not limited to; PCB guidance documents, knowledge of the on-site excavation areas where contamination was known to exist, and advice from U.S. EPA PCB experts. It is anticipated the the majority of the samples will be from the hard shale layer in the subsurface soil/bedrock profile.

Procedures:

The shale will be sampled by collecting pieces out of the excavation bottom using an appropriate hand tool. Nine grid locations will be composited and the sample aliquots will be crushed and thoroughly mixed. A grid will be placed in each excavation area which entirely covers that area with grid points at a 1.5 meter interval. If a grid point is close to or just outside of the excavation, that location will be skewed to include that point in the sampling grid. Once the samples have been processed, a 4-ounce sample will be shipped to an independent laboratory for PCB analysis. The remaining material which was processed will be retained in case there is a need for further analytical by U.S. EPA or a state agency.

Documentation:

After sample collection has occurred, a detailed map showing scaled locations of each grid point will be generated. This map will be used as a reference if there is a need to re-sample certain locations. If an area requires additional excavation, the grid will be re-established after excavation and another round of confirmatory samples will be collected, processed, and shipped to an independent laboratory for PCB analysis.

N

Possible Excavation Area

1.5 meter grid spacing.
Points will be spread over
entire excavation area (not
as shown - diagram for
reference only).

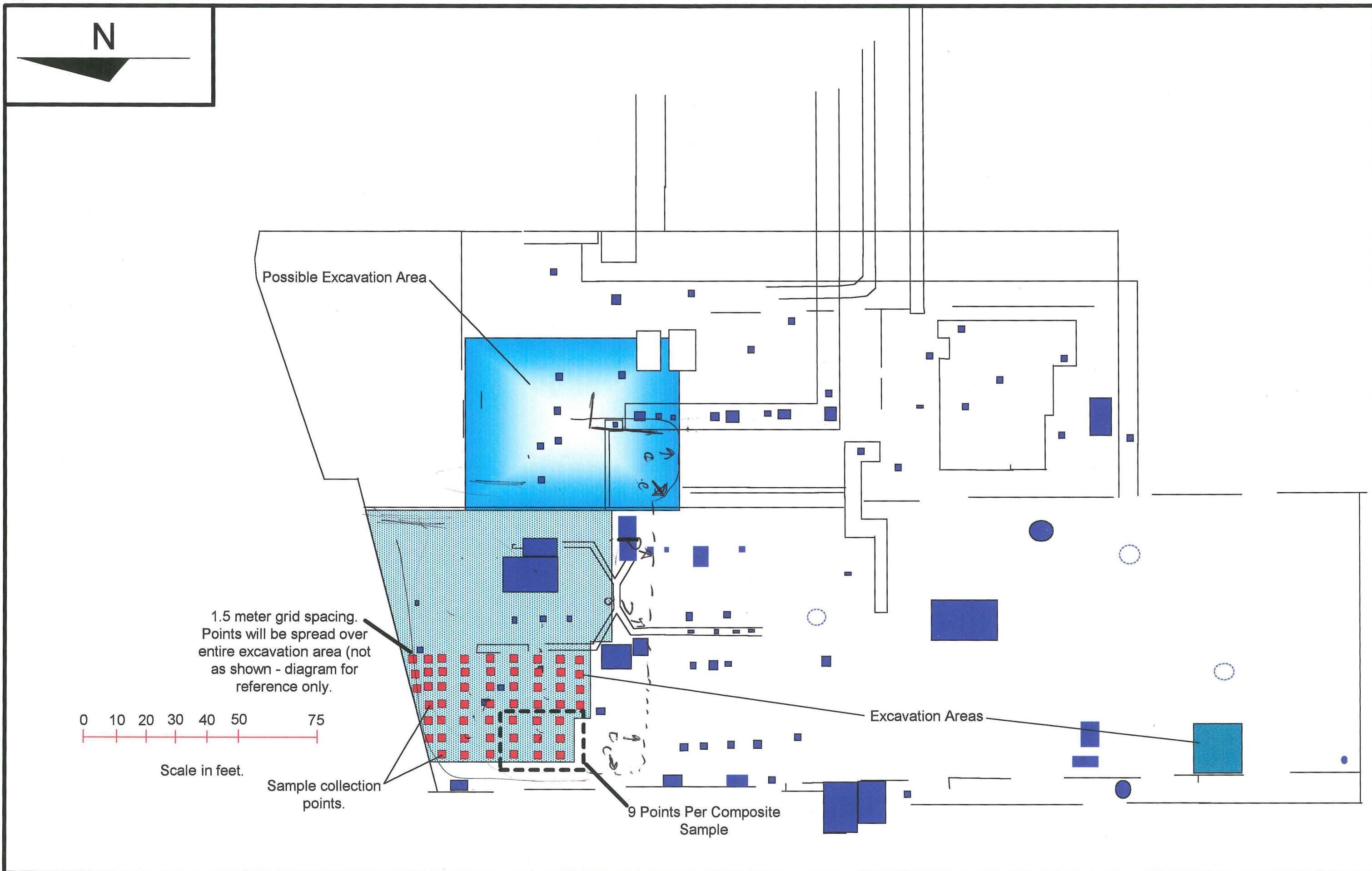
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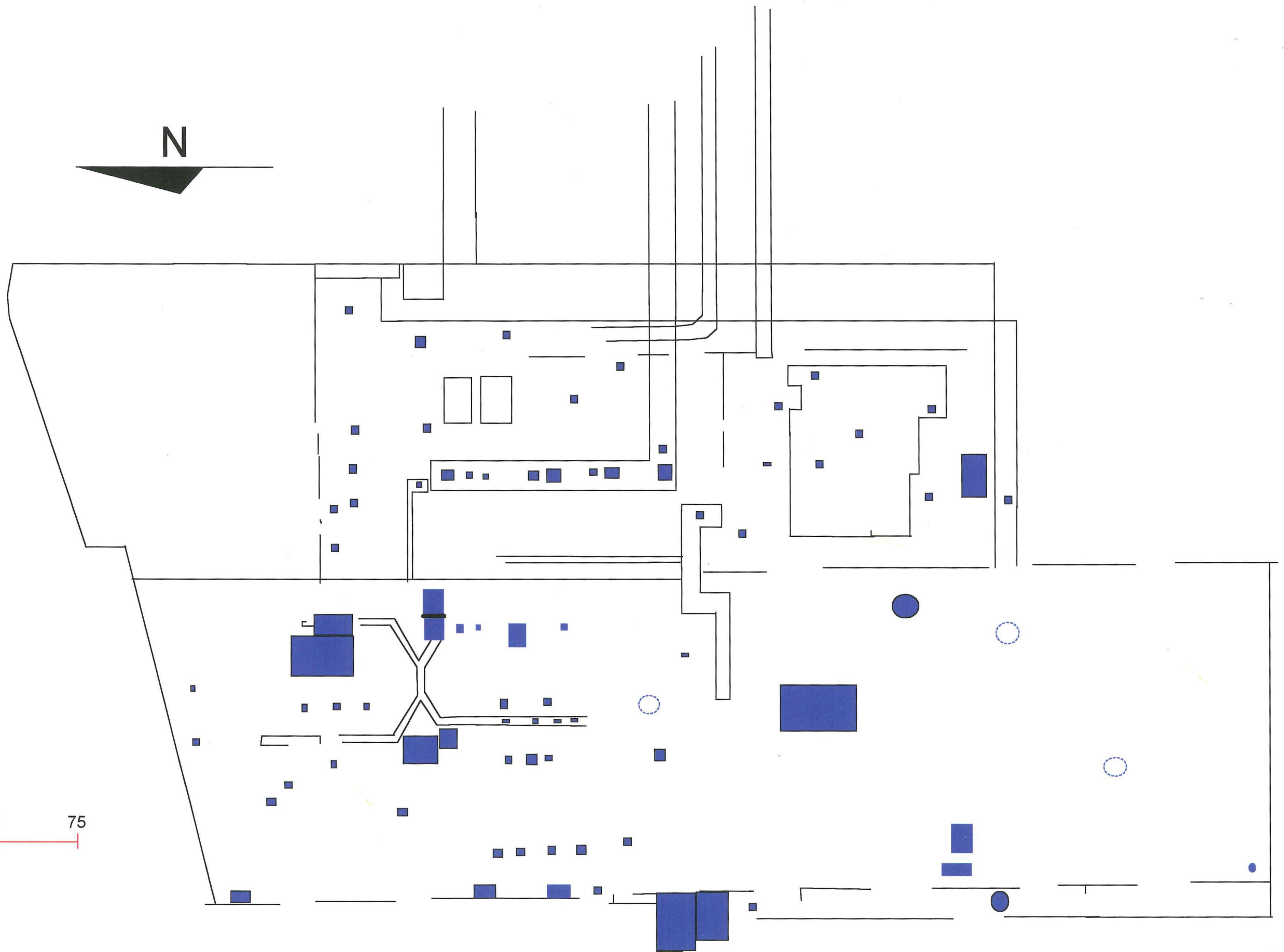
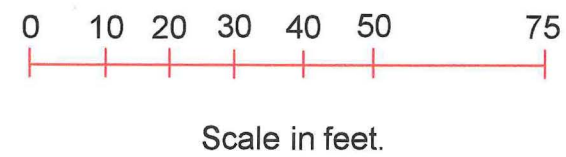
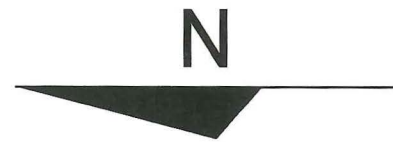
Scale in feet.

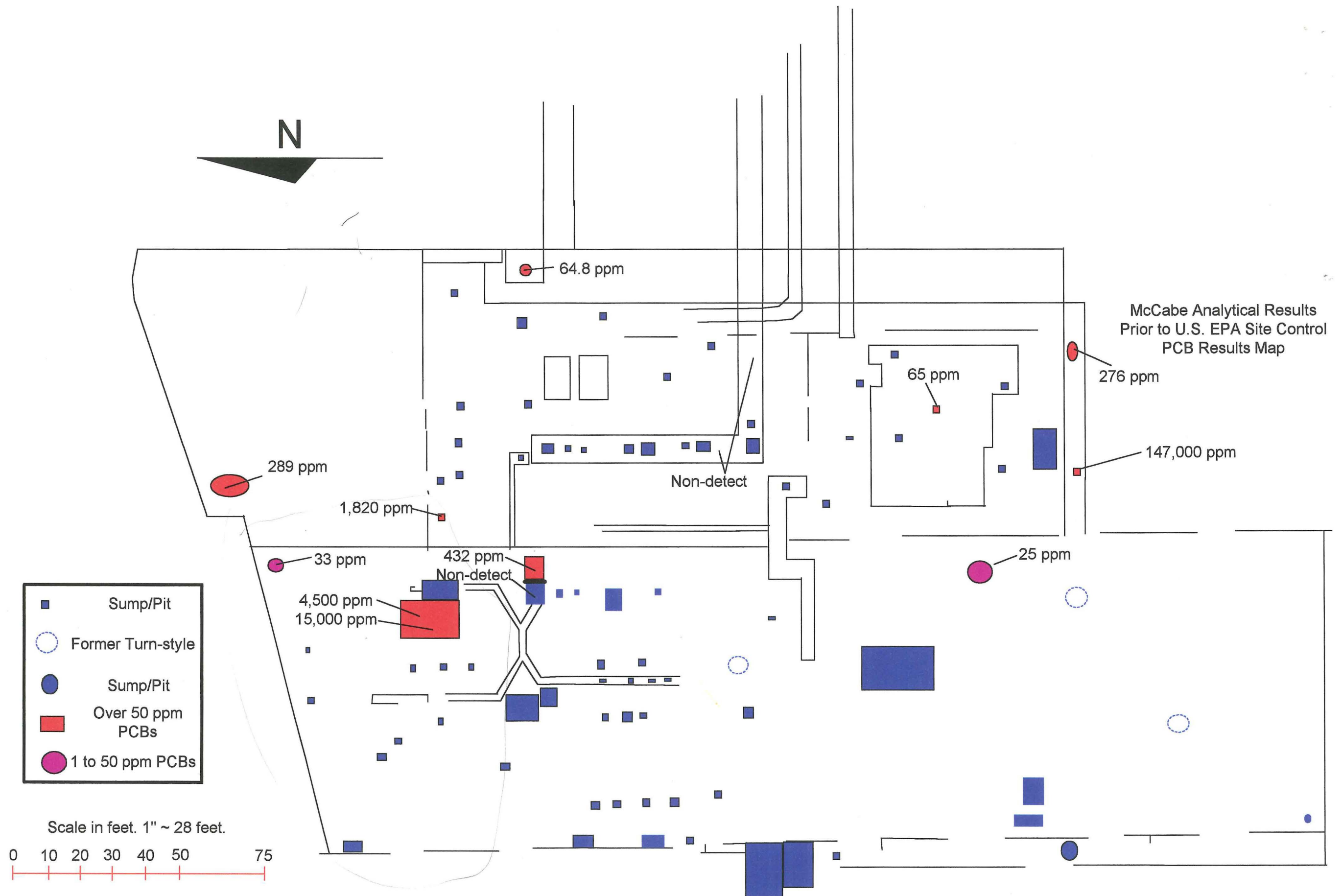
Sample collection
points.

9 Points Per Composite
Sample

Excavation Areas

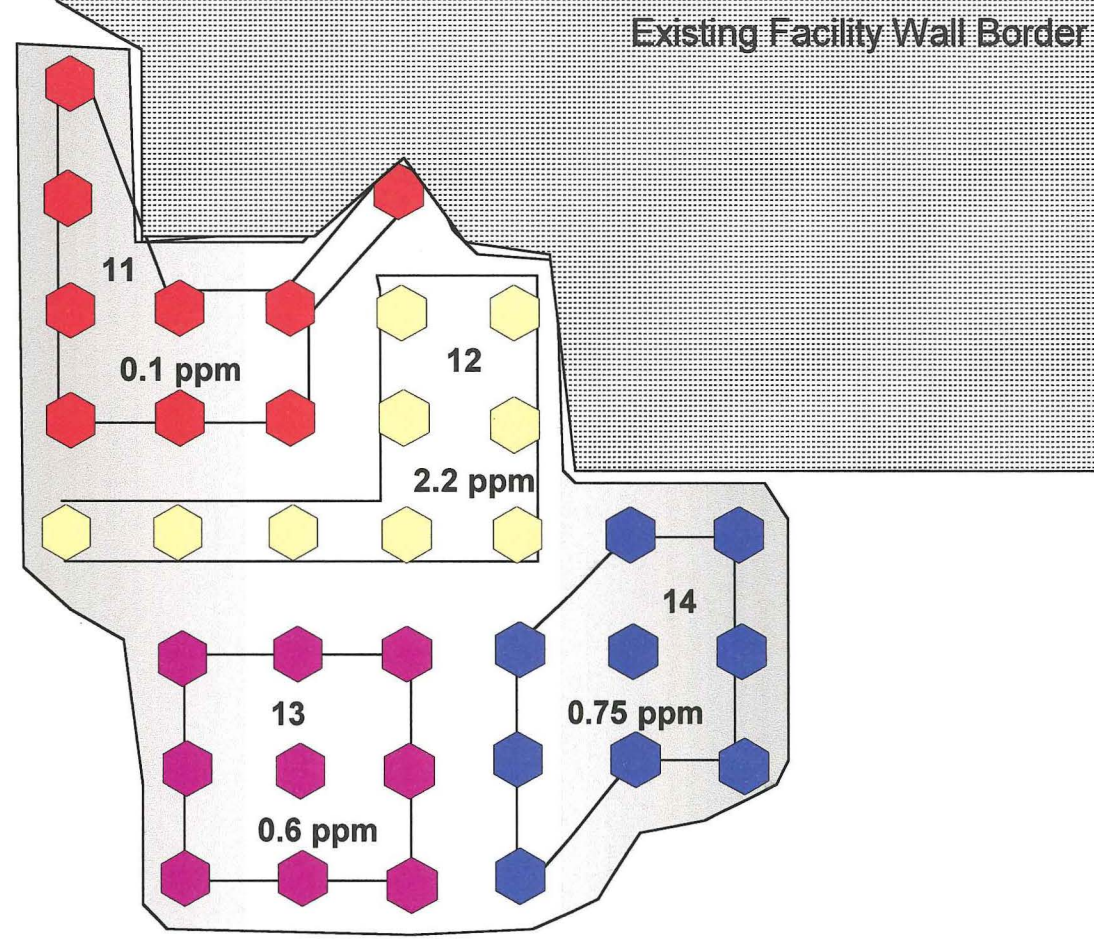
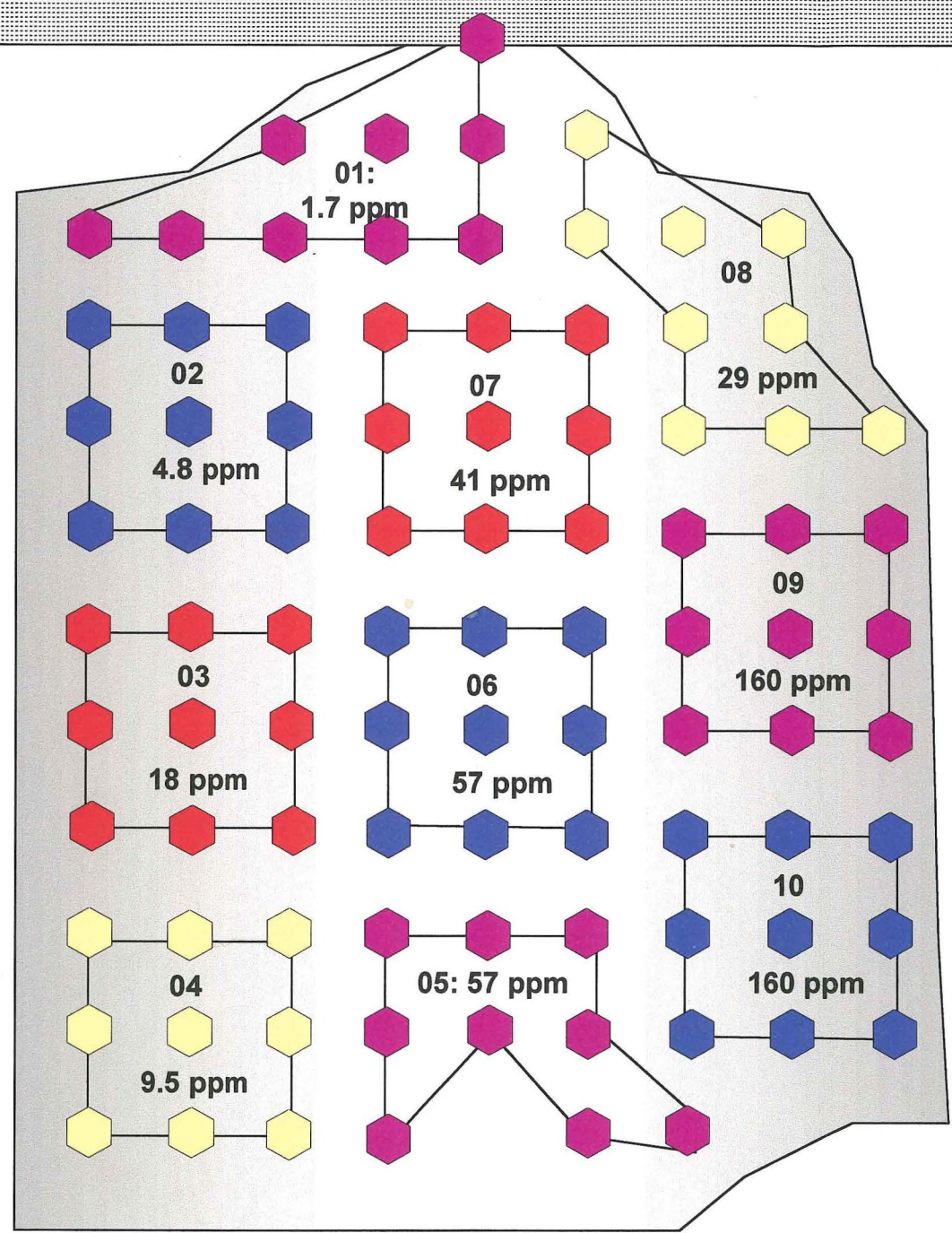




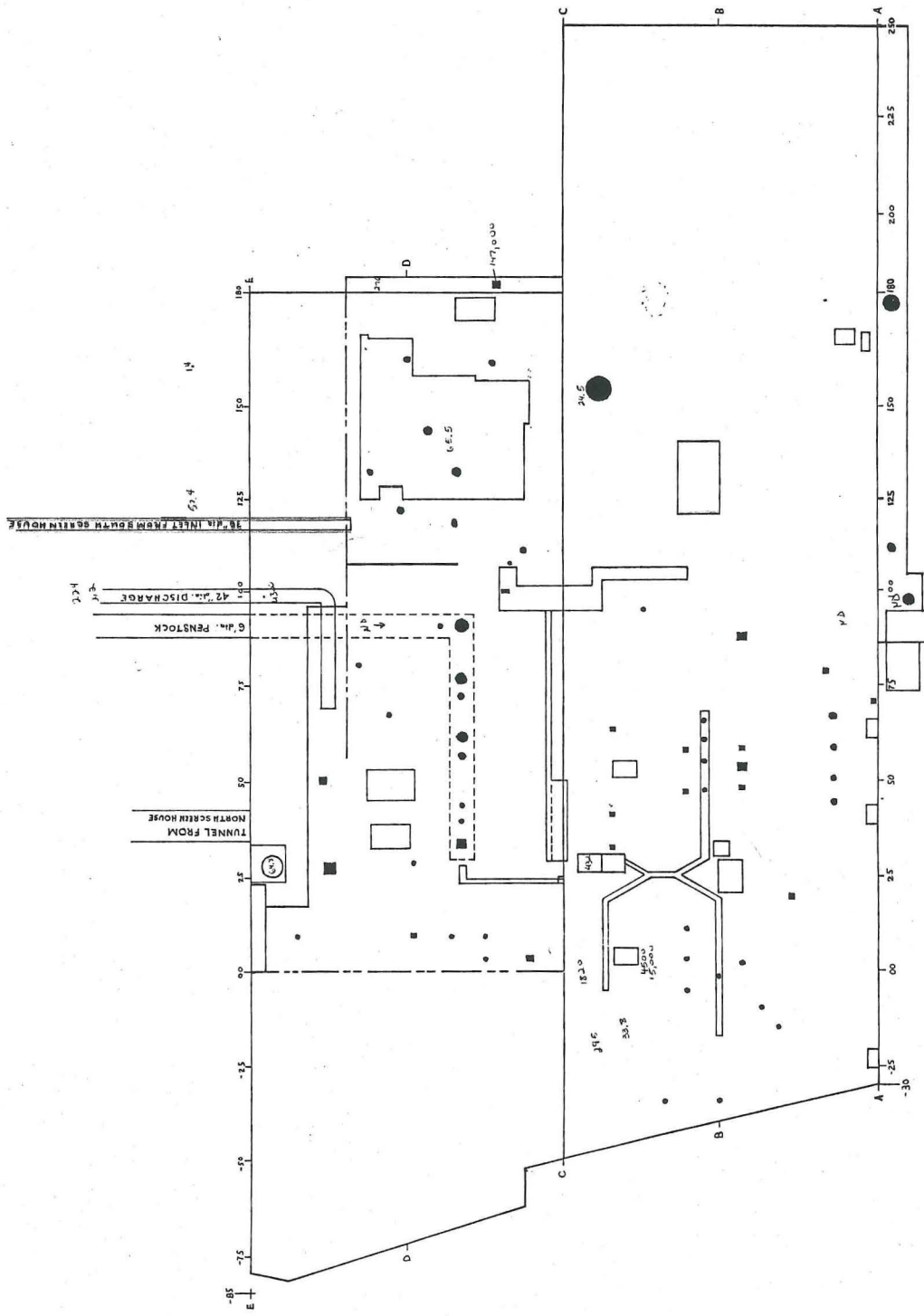


After
1st excavation
I need this
original back

PCB Results as of 2/5/01
Confirmation Samples of the Excavation

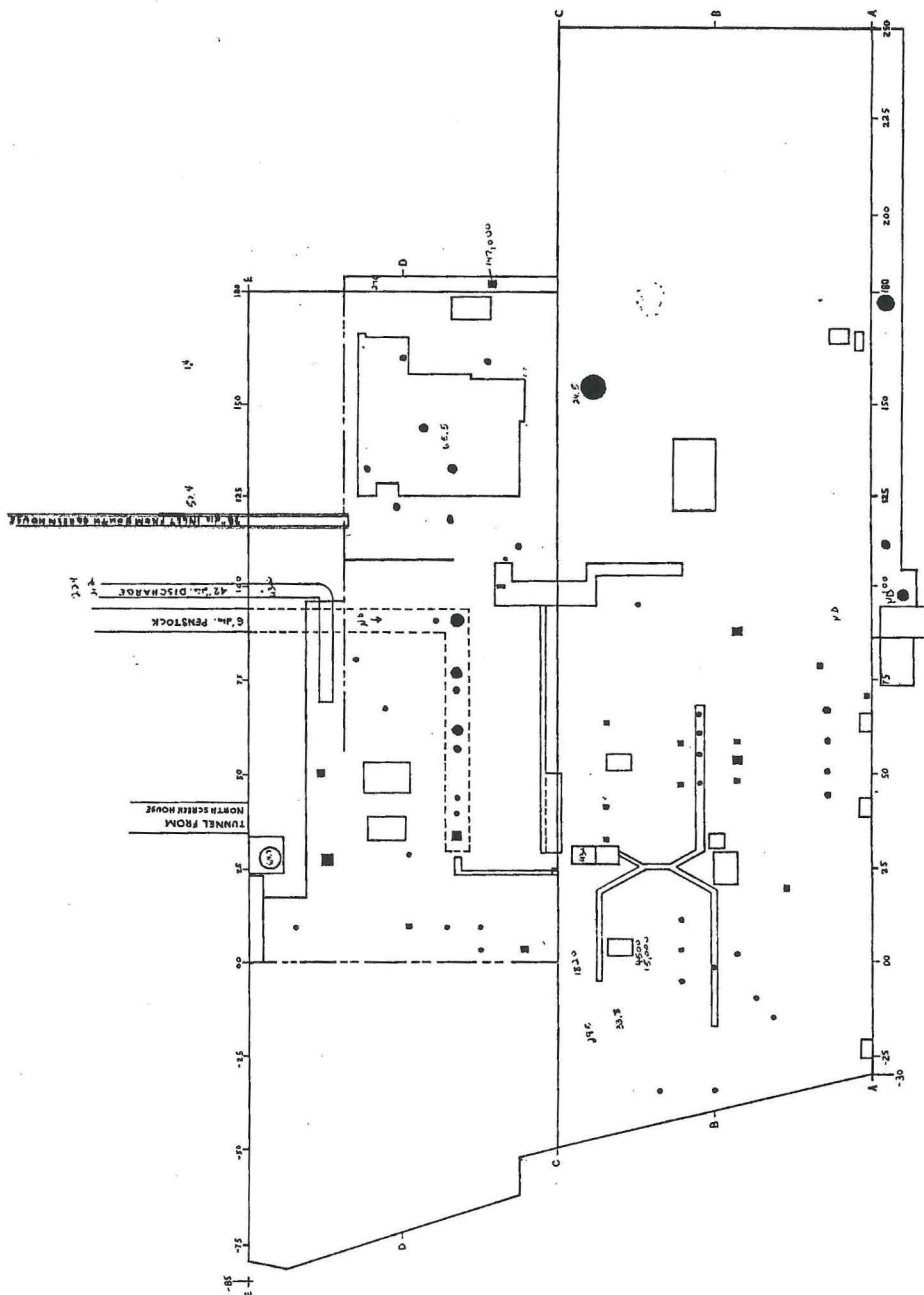


Existing Facility Wall Border



MAHONING SIDE POWER PLANT

SCALE:	APPROVED BY:	DRAWN BY: WPD
DATE: 5-11-00		REVISED
SCALE: 1" = 10'	0	10 20 30 40 50 75
DRAWING NUMBER		
POWER + BOILER HOUSE RECEPTORS		

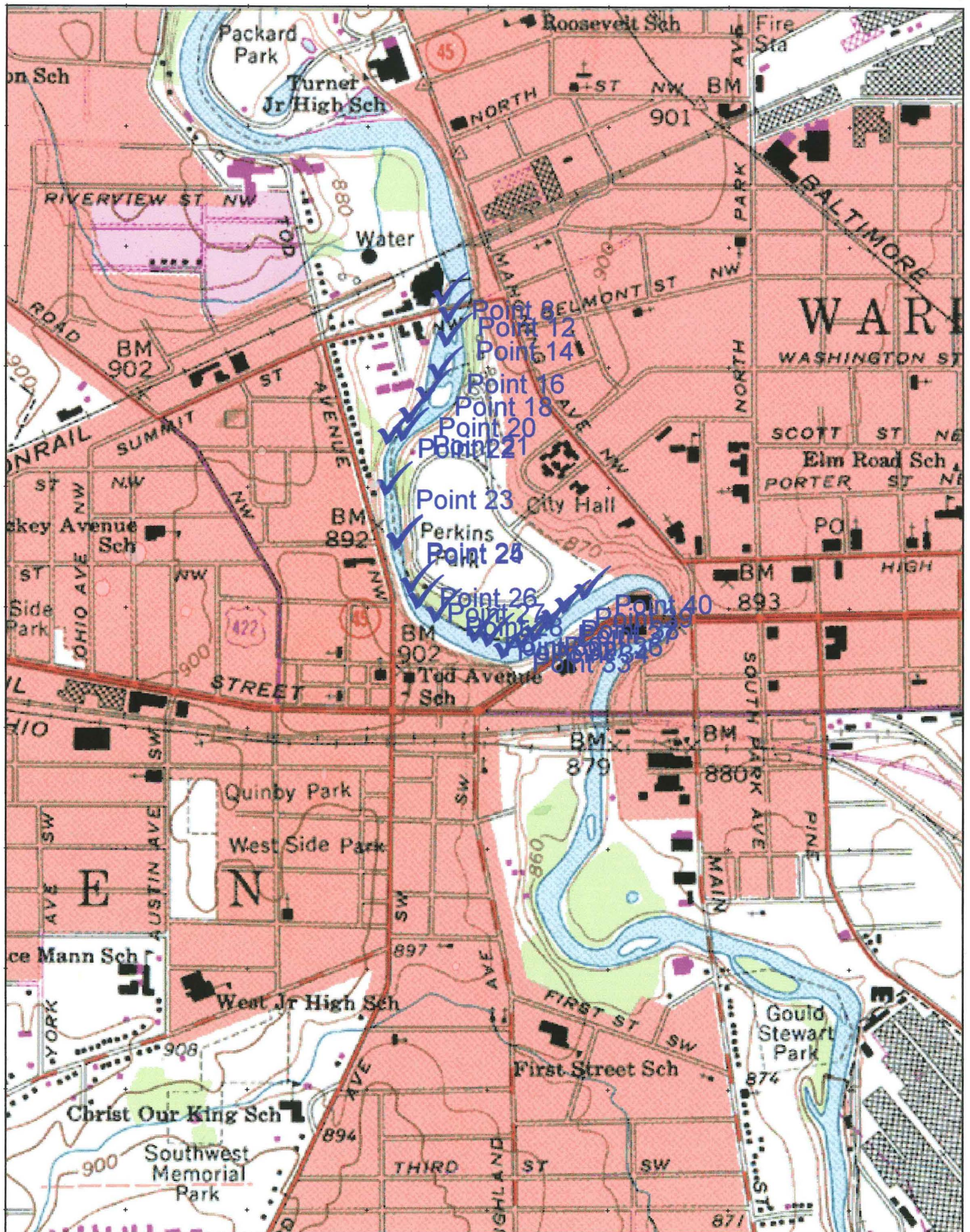


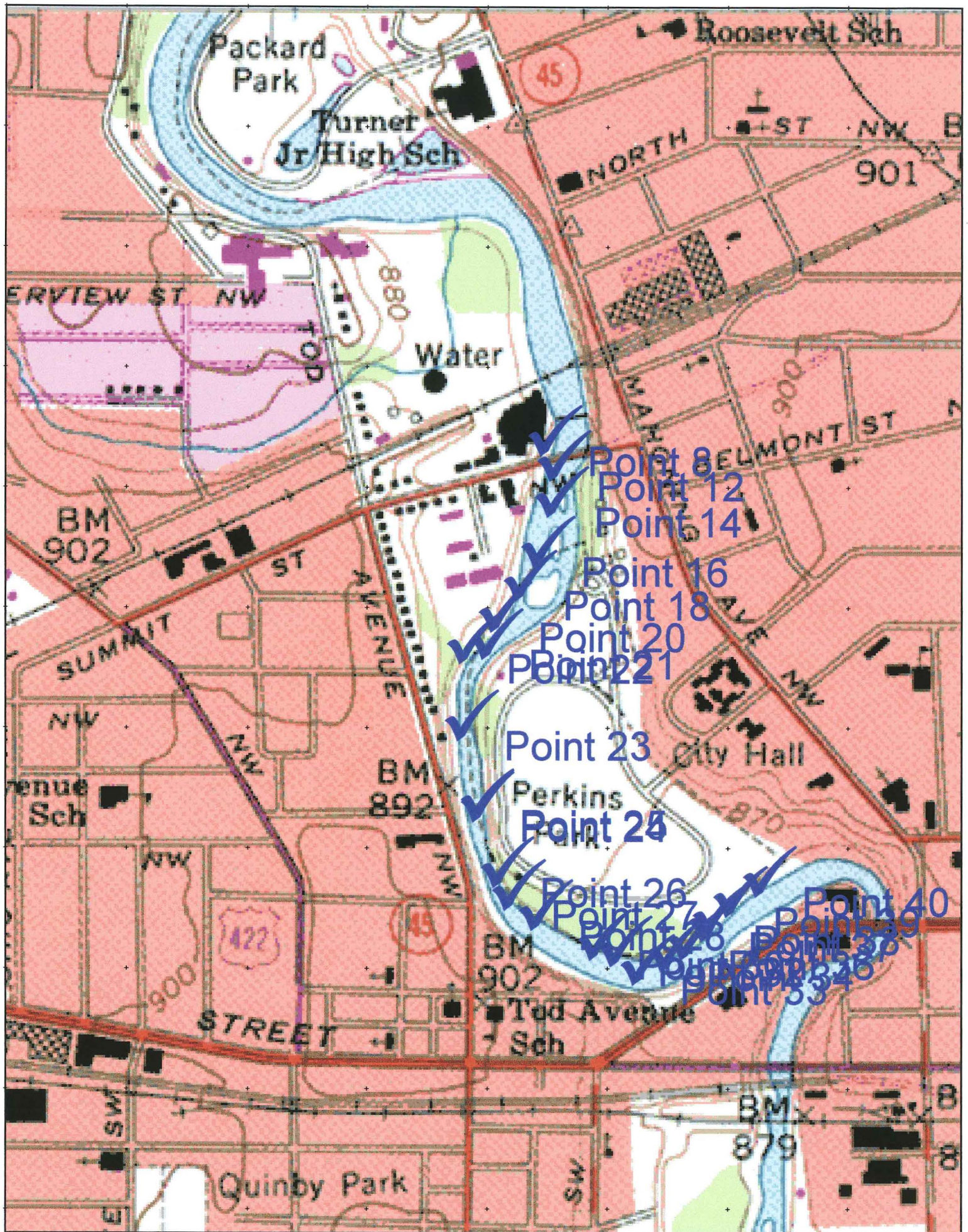
MAHONINGSIDE POWER PLANT

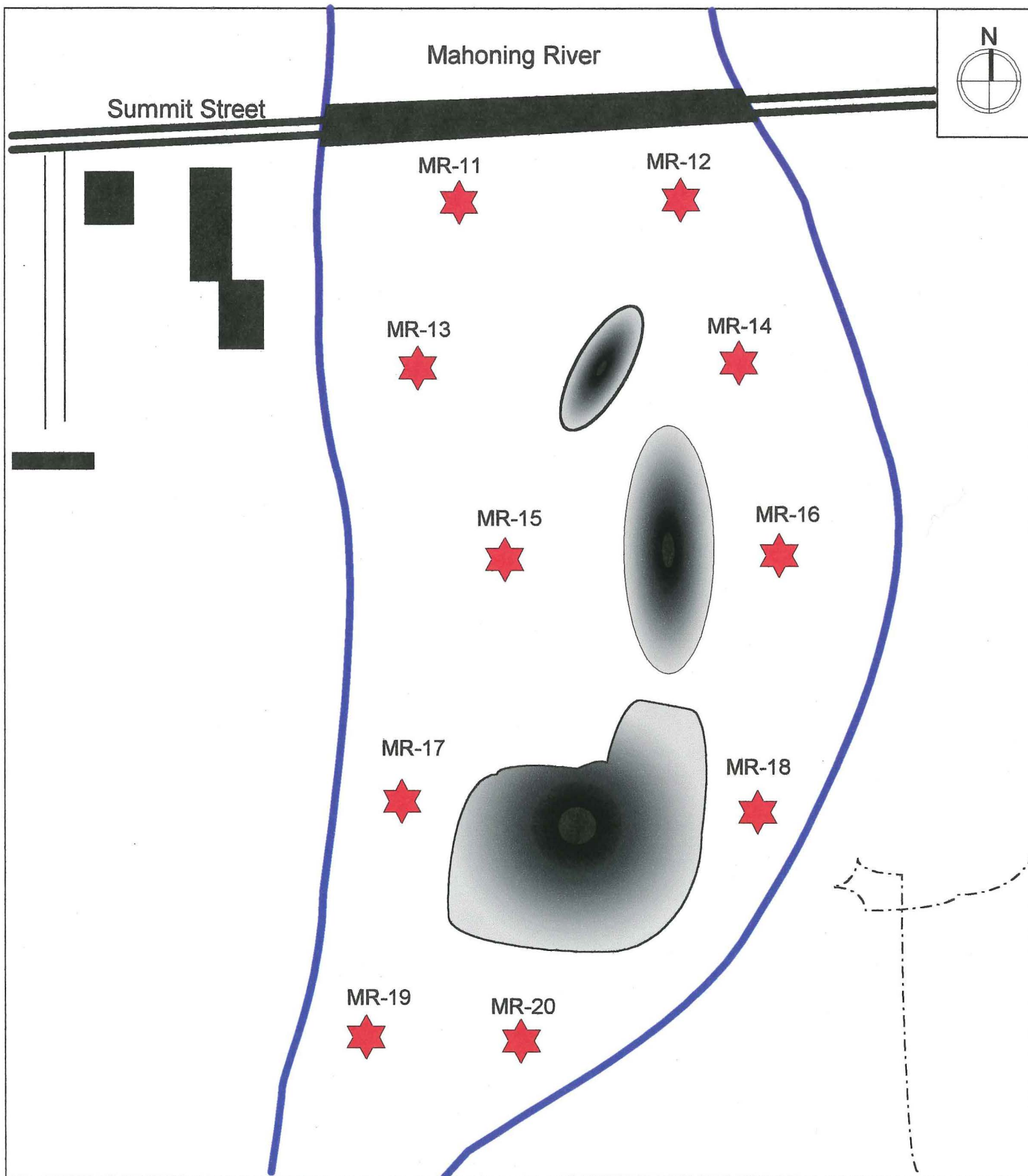
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APPROVED BY: [Signature] DRAWN BY: WPD

POWER + BOILER HOUSE RECEPTORS







Sample Location

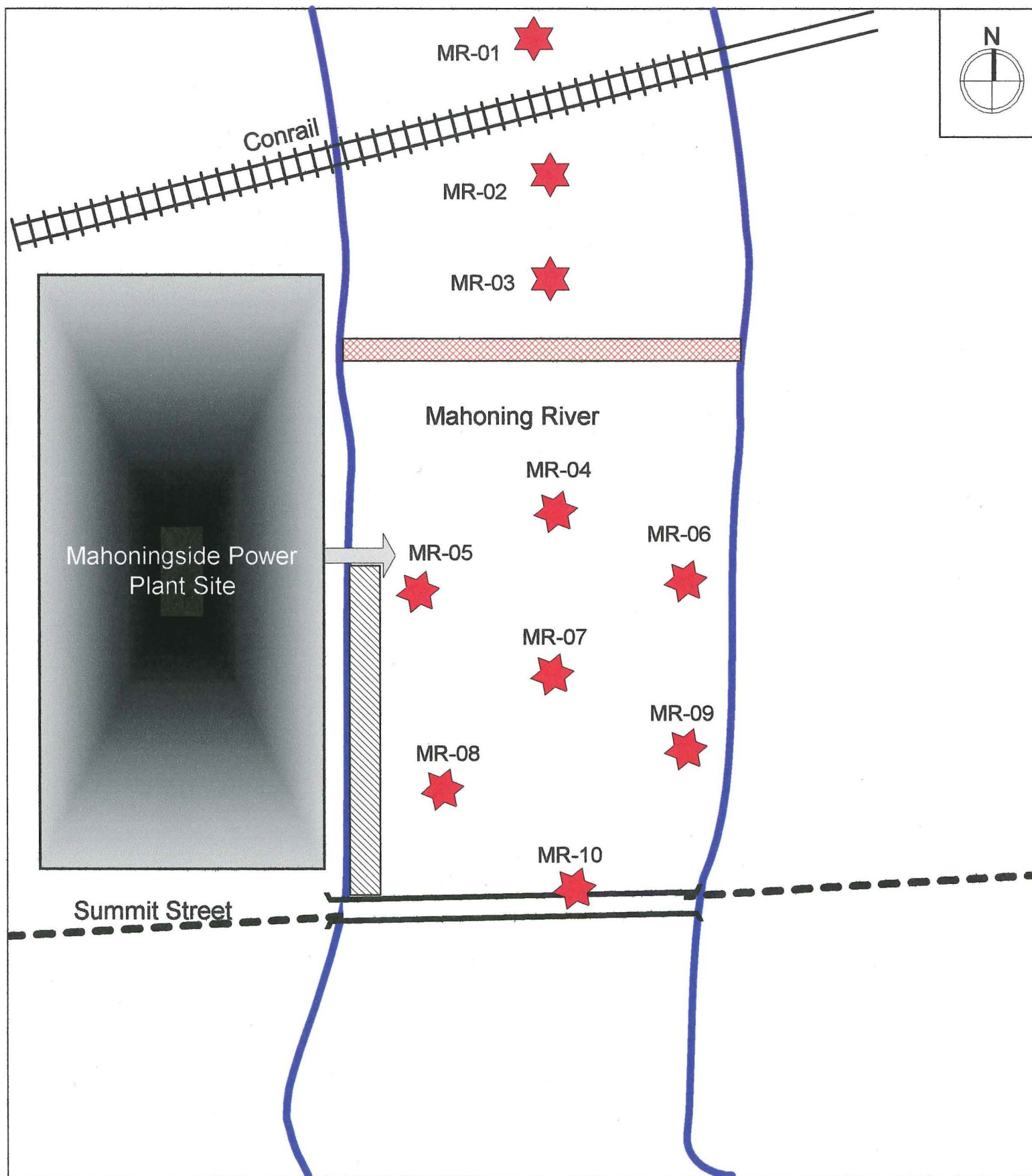


Island



Ecology and Environment, Inc.
 Region 5 - Superfund Technical Assessment and Response Team
 6777 Engle Road, Suite N
 Middleburg Heights, Ohio 44130

TITLE: Mahoning River Sample Map, Area 2	FIGURE: 2
SITE: Mahoningside Power Plant site	SCALE: Not to Scale
CITY: Warren STATE: Ohio	TDD: S05-0009-018



Dam



Sample Location



42" Discharge Pipe



Ecology and Environment, Inc.
Region 5 - Superfund Technical Assessment and Response Team
6777 Engle Road, Suite N
Middleburg Heights, Ohio 44130

TITLE: Mahoning River Sample Map, Area 1

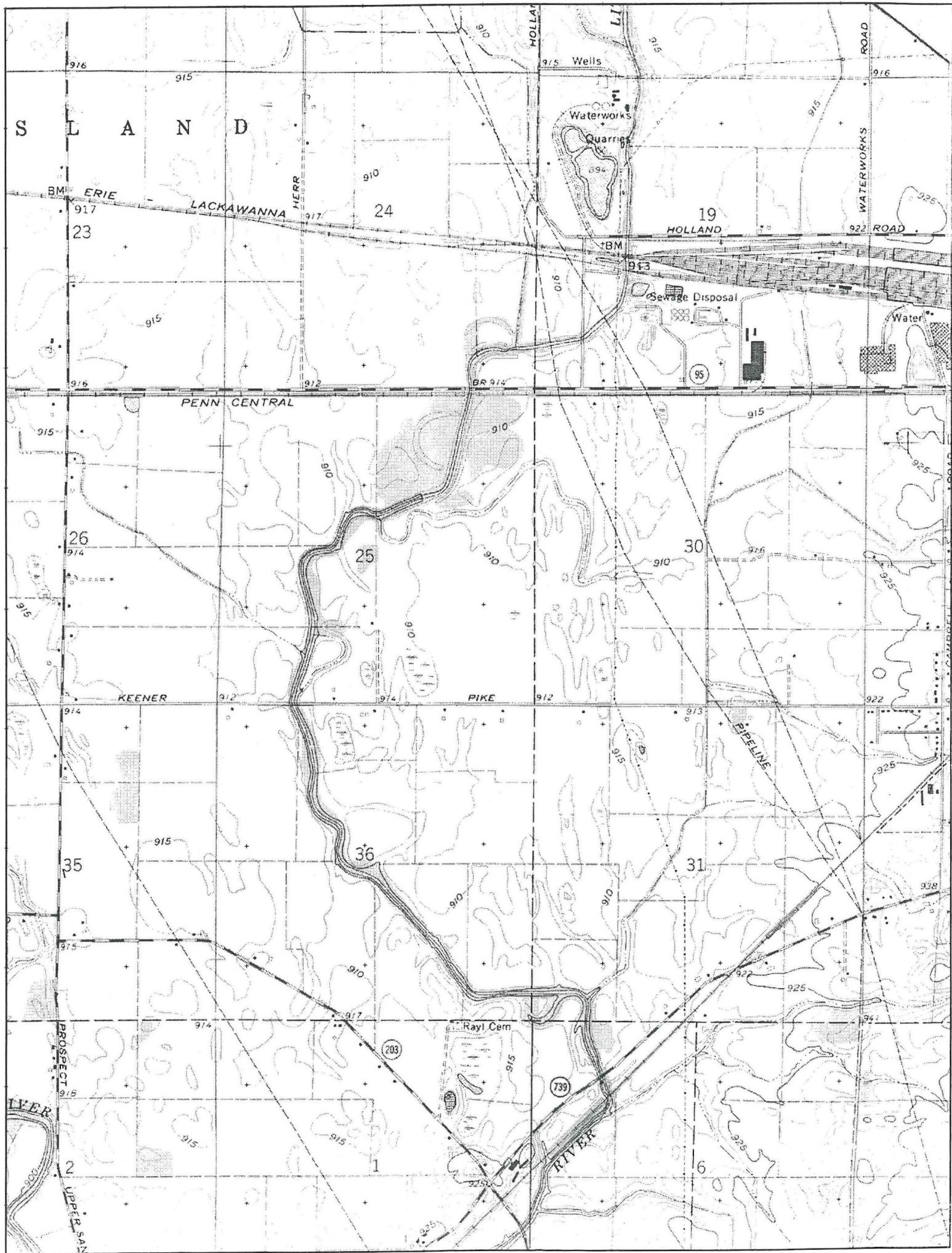
FIGURE: 1

SITE: Mahoningside Power Plant site

SCALE: Not to Scale

CITY: Warren STATE: Ohio

TDD: S05-0009-018



[Next: 80008.htm](#) / [Previous: 80032](#) / [Concluded Project Summary](#) / [Overview](#)

CONCLUDED PROJECTS ENVIRONMENT AND SAFETY

PCB REMEDIATION

Project: 80026

Period: 10/1/91 - 3/31/98

Funding: SMP: \$497K // GRI: \$440K // IND: \$150K

Project Manager: Vipul J. Srivastava, e-mail: shivasta@igt.org

Objective: To demonstrate the technical and economic advantages of an integrated chemical and biological treatment process for treating PCB-contaminated soil and water.

Description: The process combines two remedial techniques: 1) treatment using chemical reagents and 2) biological treatment using aerobic and/or anaerobic biosystems either in sequence or alone, depending on the waste. The process is applicable to remediation of soils and liquids containing both low and high waste concentrations. Applicable matrices include soil, sludges, groundwater, and surface water. This project was funded by GRI, SMP, and industry.

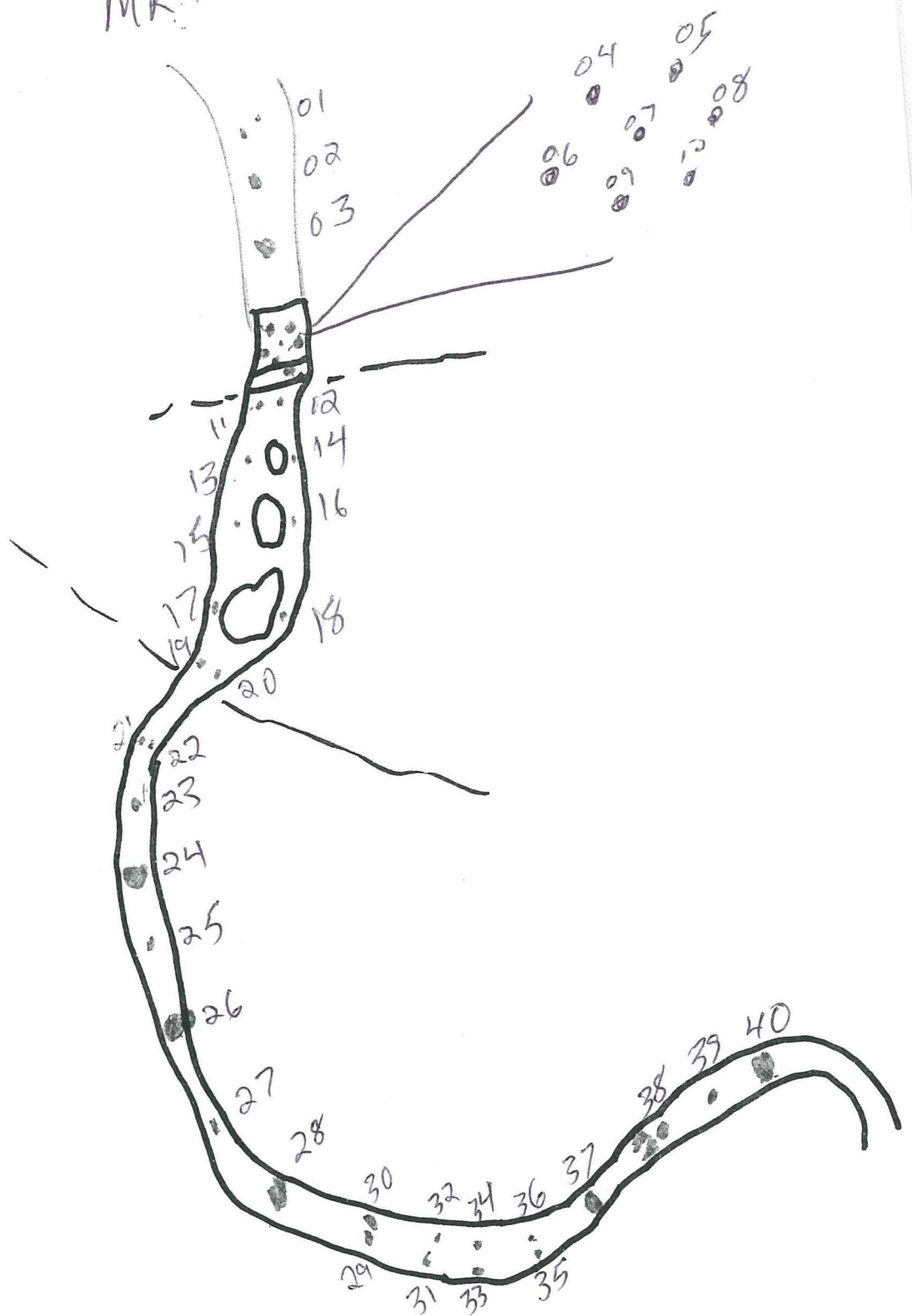
Results: Results from our investigations indicate that a significant fraction of PCBs can be directly mineralized (i.e., completely destroyed) to CO₂ in a single cycle of chemical and biological treatment. In this treatment process, PCBs are modified, in a pretreatment step, to a water soluble, as well as more easily biodegradable product using chemical reagents. This product is then completely destroyed in the subsequent biological treatment step.

IGT performed bench-scale tests on a PCB-contaminated soil from an industrial site. Test results in the laboratory slurry reactor, using our microbes and surfactants, showed reductions from 380 ppm PCB to 5 ppm PCB in 10 days, and to less than 2 ppm in 20 days.

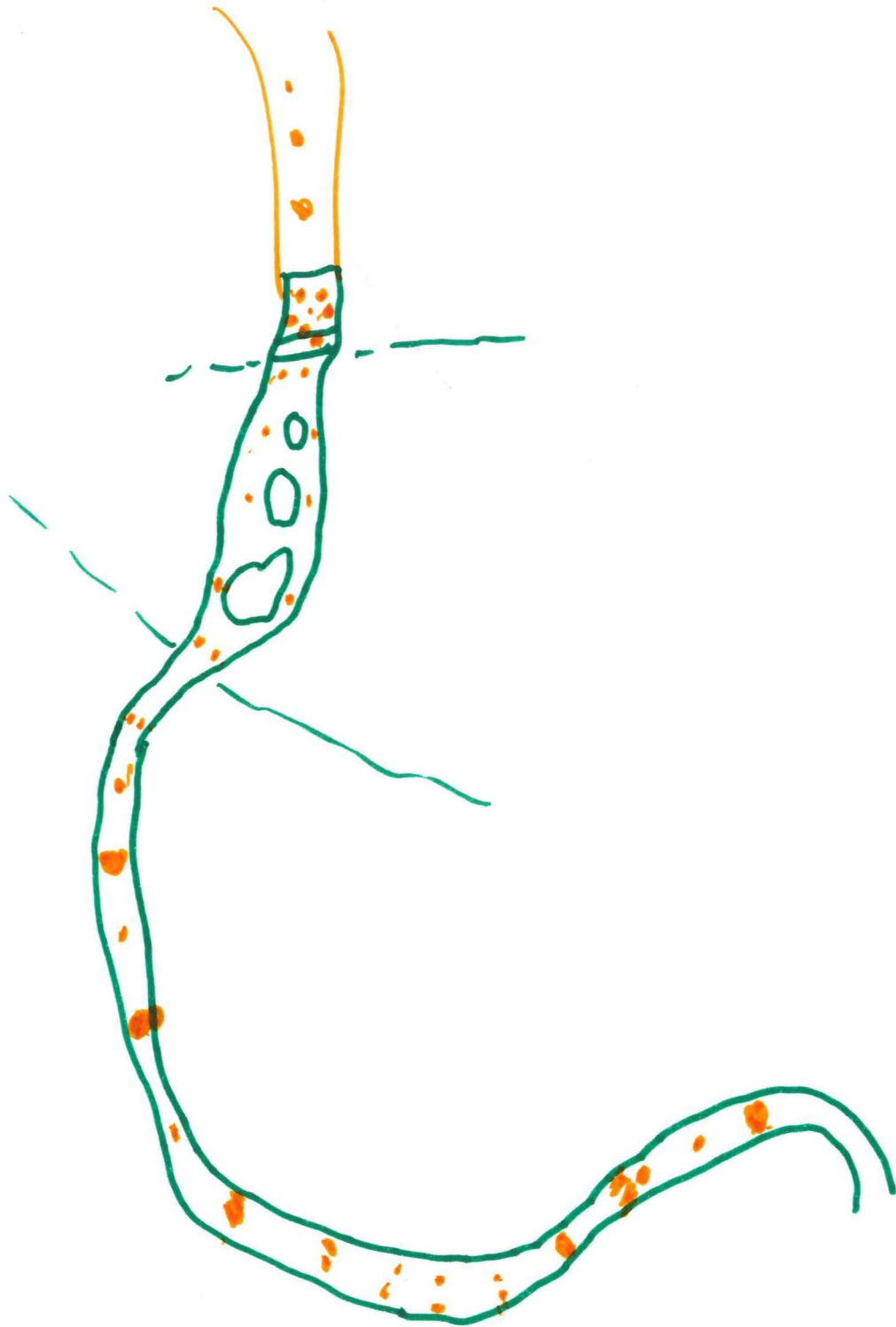
In aqueous environments, chemical treatment alone can remove more than 99% of the PCBs. For PCB-contaminated soils, our process is much more effective than conventional bioremediation. We have developed improved biological cultures that increase the total remediation efficiency and that destroy up to 95% of some PCB congeners. In addition, proprietary surfactants were developed, in cooperation with a large surfactant manufacturing company, to increase the availability of PCBs for chemical and biological degradation.

Application & Status: Treatment for PCB's. IGT has developed an integrated chemical/biological treatment process for PCB-contaminated soils and water. A patent (U.S. Patent No. 5,750,065) has been issued. IGT's Environmental Center provides services that includes the remediation of PCB contaminated soils. Contact Vipul Srivastava at 847-768-0539, e-mail: shivasta@igt.org.

MR.



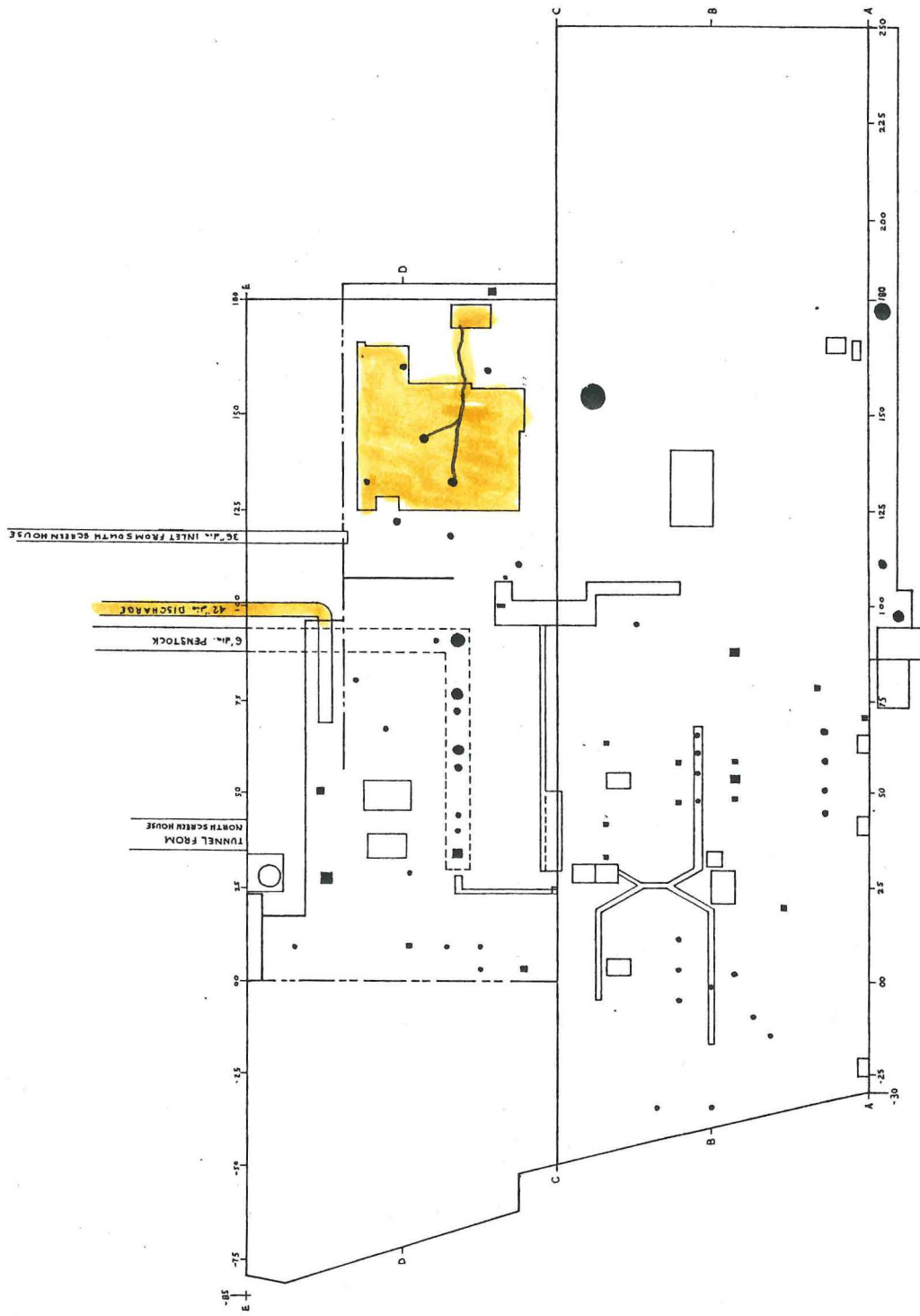
2660



\$2660



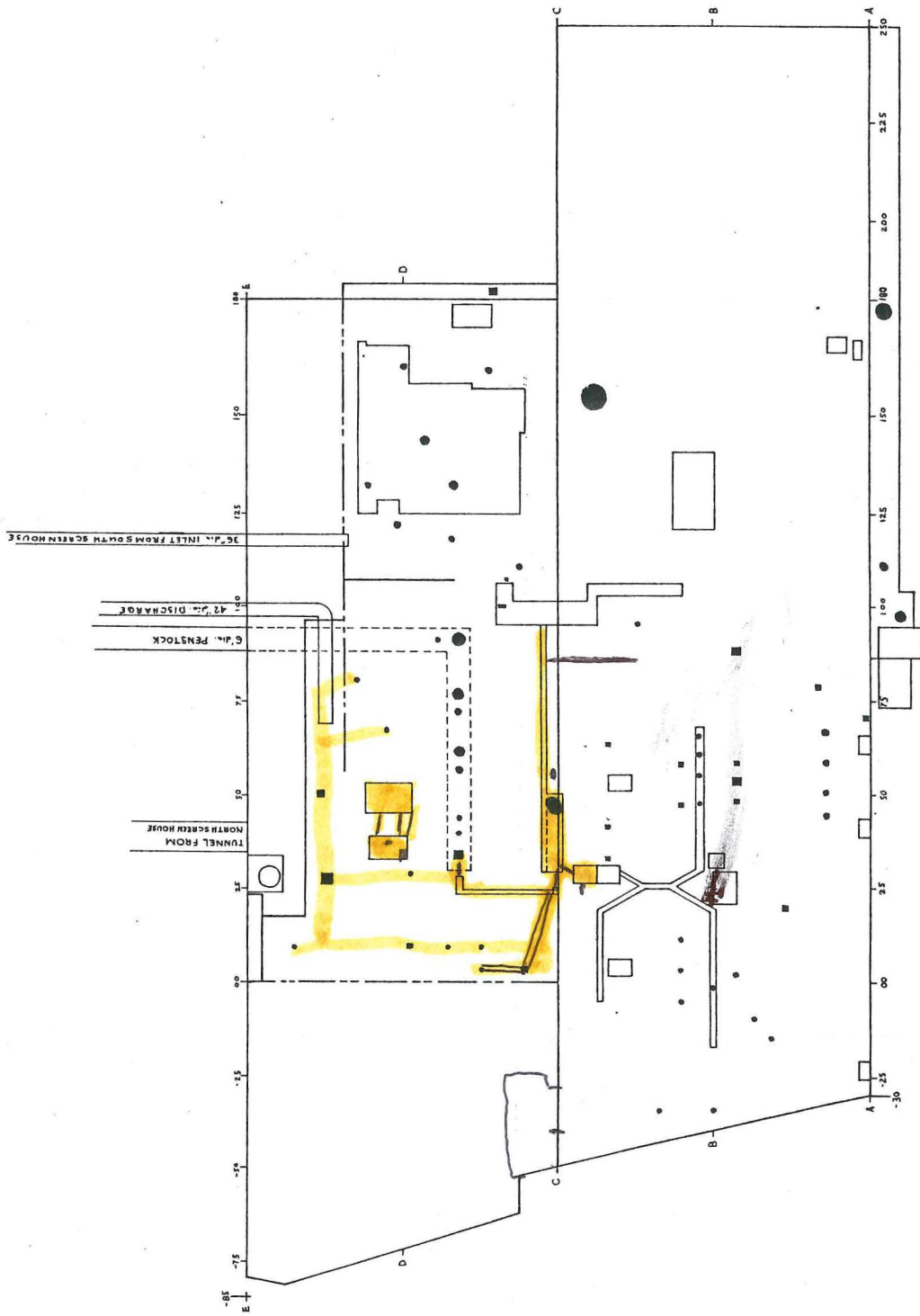
10-16-00



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MAHONINGSIDE POWER PLANT	
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DATE: 5/1/00	DRAWN BY: WPD
SCALE: 0 10 20 30 40 50 75	REVISED
POWER + BOILER HOUSE RECEPTORS	
DRAWING NUMBER	

10-17-00



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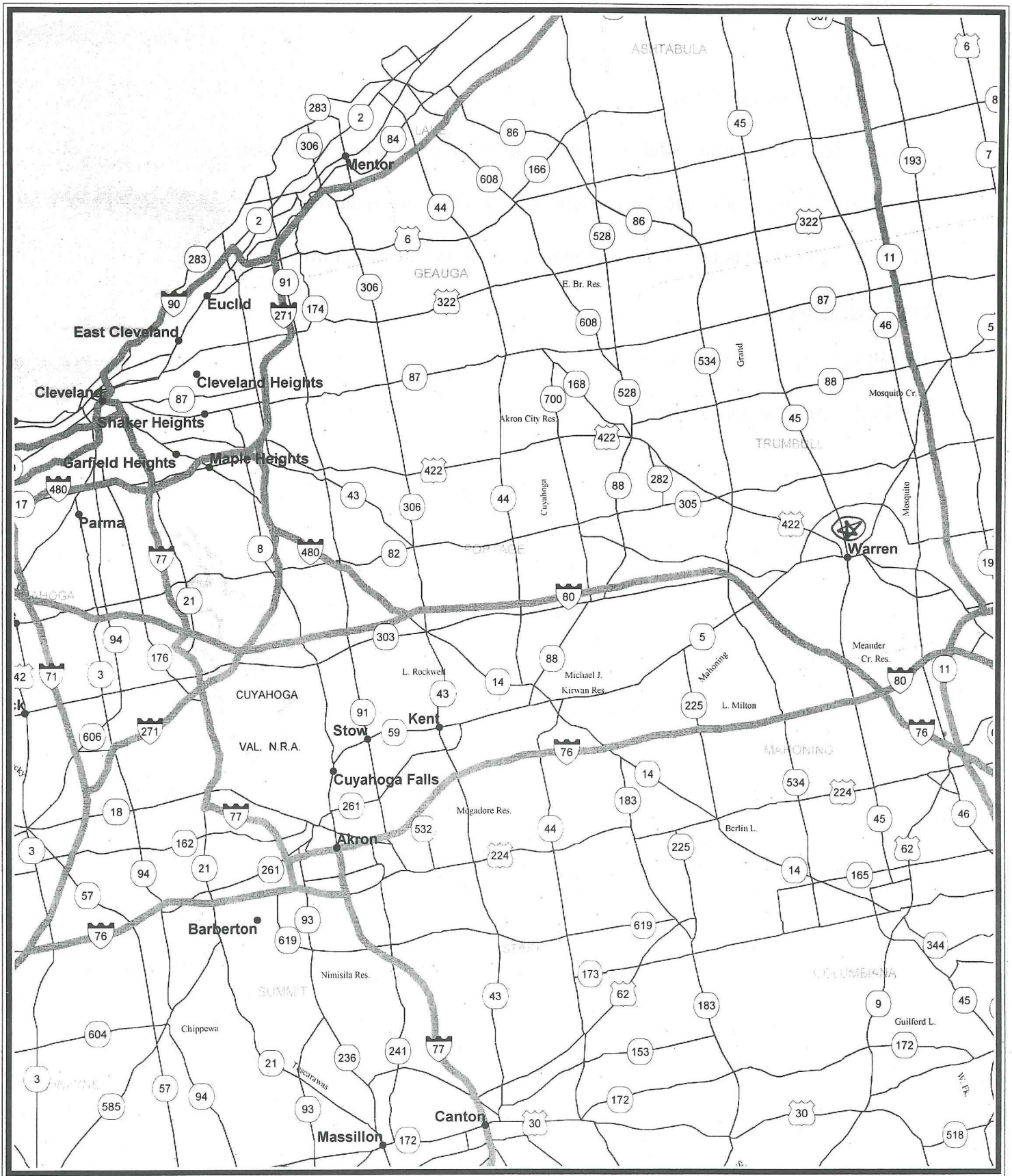
MAHONINGSIDE POWER PLANT

SCALE: 1" = 100' DATE: 5-17-00 APPROVED BY: WPD

REVIEWED: SCALE: 1" = 100' 0 10 20 30 40 50 75

DRAWING NUMBER POWER + BOILER HOUSE RECEPTORS

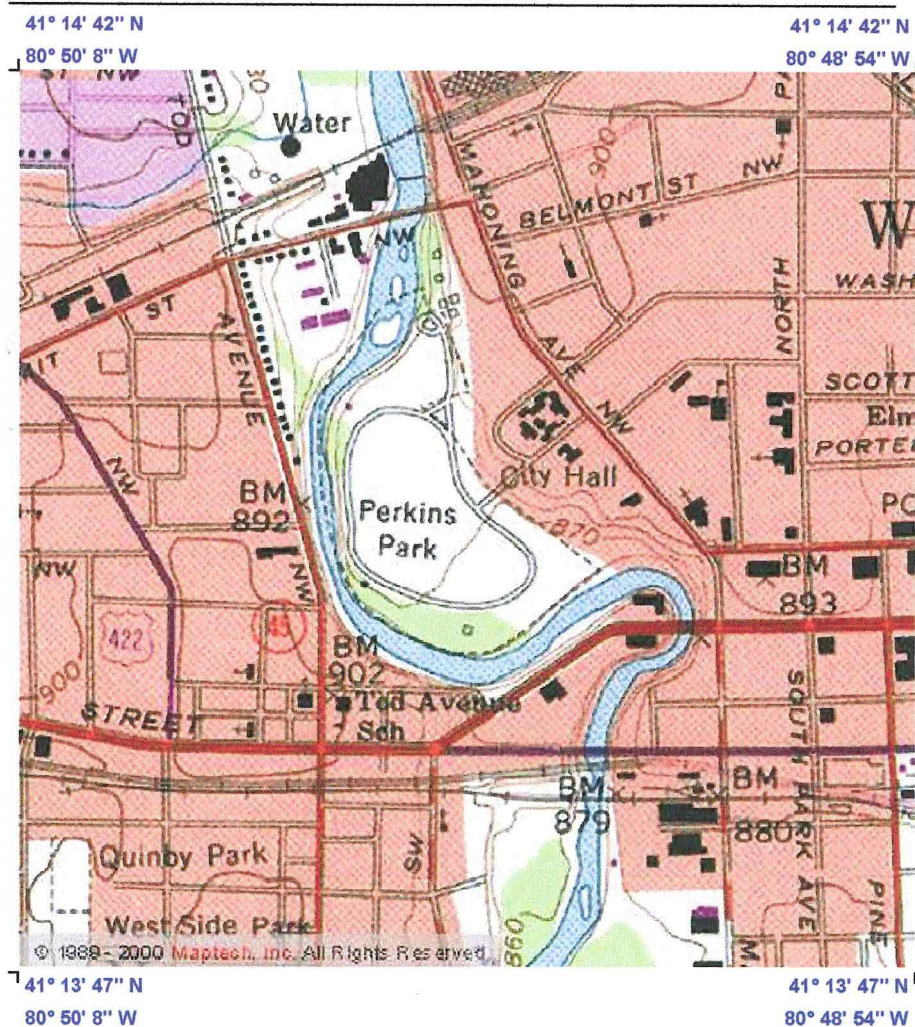
Current Map



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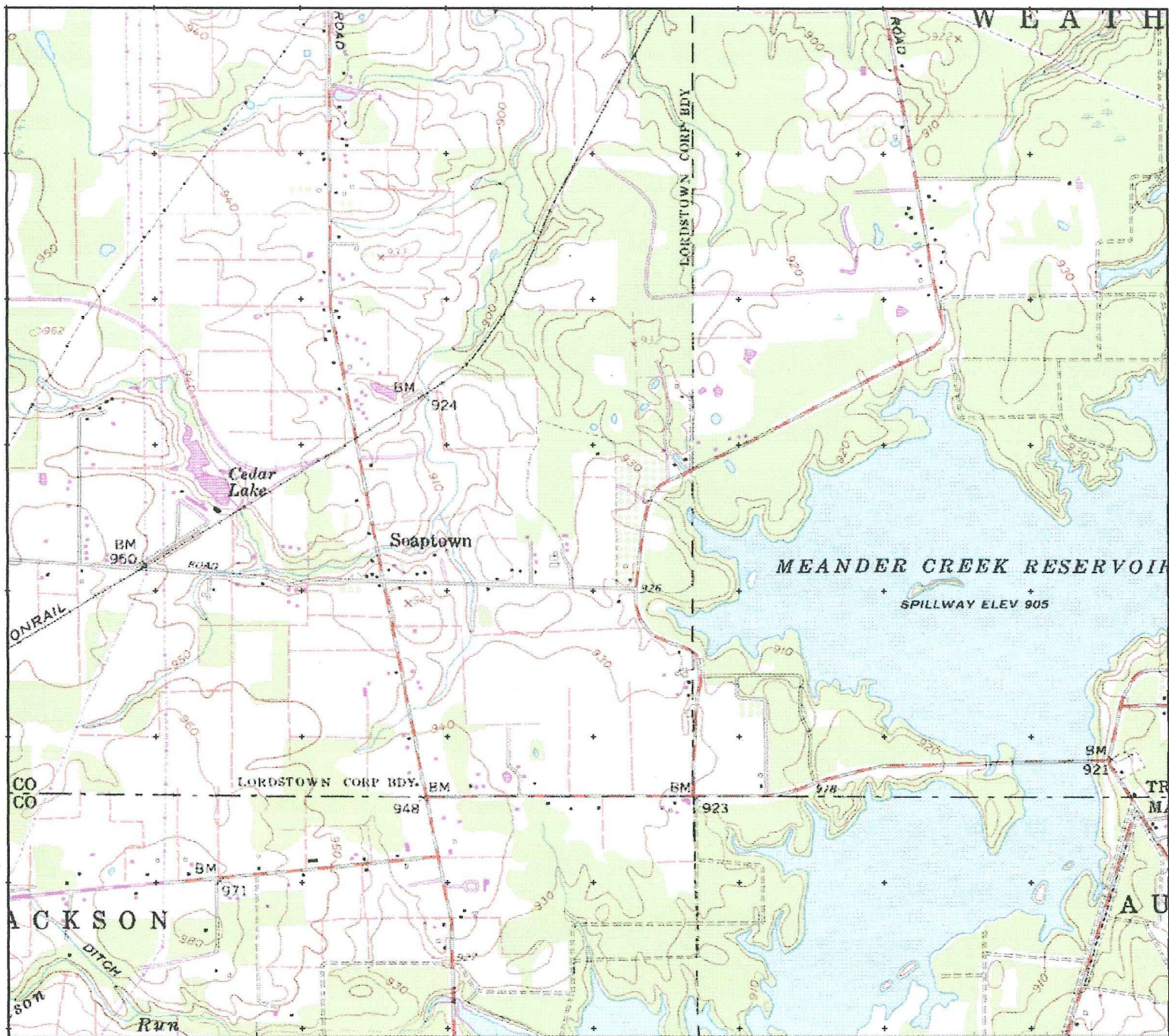


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INIA TURNPIKE 23 MI.

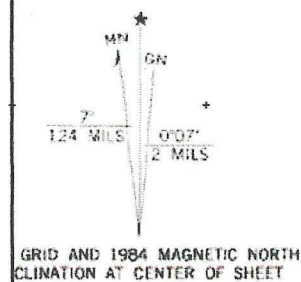
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R. 4 W. (CANFIELD) 4866 111 SE R. 3 W.

SCALE 1:24 000

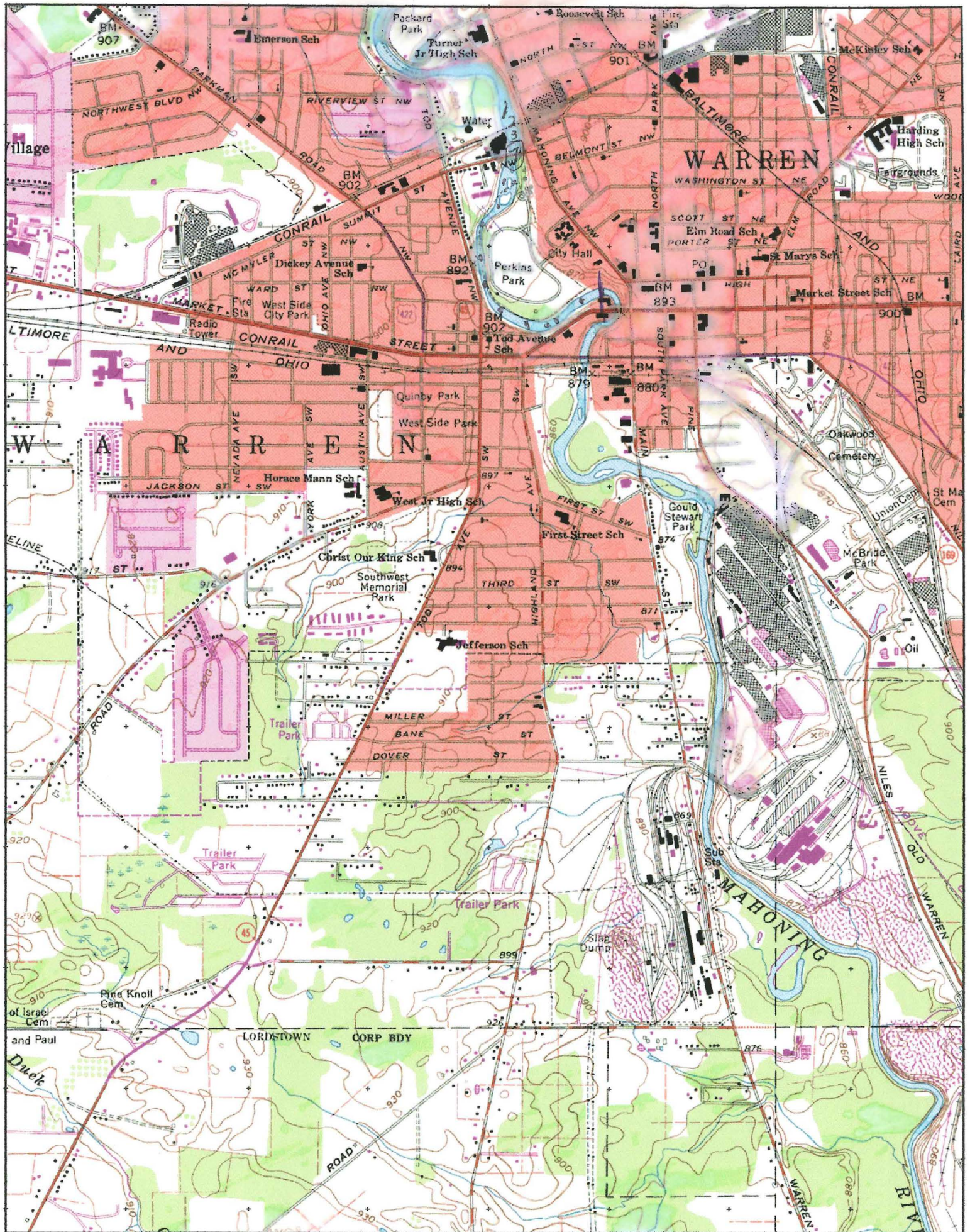


CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

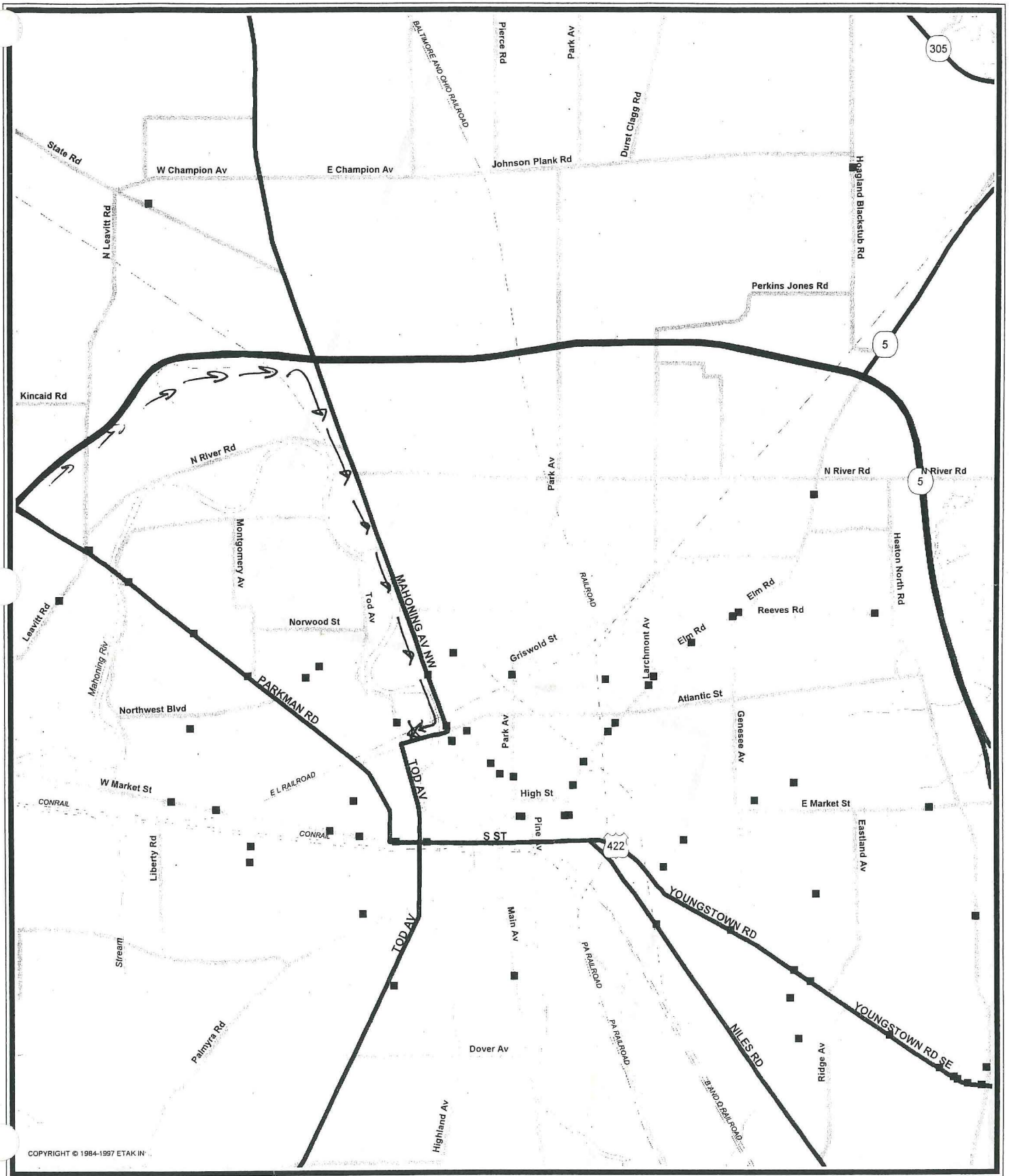


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Revisions
cooperative
photograph
information
Purple tin



Current Map



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Current Map

MAHONING SIDE POWER
PLANT SITE

650 SUMMIT ST.
WARREN, OH

